New Teacher Perceptions of Inclusive Pedagogies: Designing New Futures for the Changing Classroom

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Abstract

Our perceptions of knowledge attainment have changed (Bezemer & Kress, 2010). The type of students our teachers once were is vastly different from the students they currently teach. We need our next generation to thrive in a dynamically, interactive world saturated with opportunities for meaning making (Kress & Selander, 2012). Our current students are responsible for continuing our society, but that does not mean we need them to become us (Gee, 2009). Rather desperately, we need them to be thinkers and expressive in a variety of modes. The world will be different when they take their rightful place as the next generation of leaders, and so too must their thinking be different (Cope & Kalantzis, 2000). This explanatory mixed-method study (Creswell, 2013; Mertens, 2014) involved an investigation into perceptions of new teachers regarding inclusive pedagogies like Universal Design for Learning (CAST, 2011). It specifically discusses the contemporary thinking of 44 new Ontario teachers regarding inclusive pedagogies in their teacher education as well as their relative intent to utilize them in their practice. This study reveals a distinct tone of skepticism and provides suggestions for the continued improvement of teacher education programs in this province.

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If you have great supporters at home, you will never play an away game in your life. I have had a great home team and it has made all the difference.

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Here, I became a teacher. Here, I became a scholar. Here I was reminded never to take myself too seriously. Brock has made me whole.

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CHAPTER ONE: INTRODUCTION

This is a study of the perceptions of new teachers regarding inclusive practice in the intermediate and senior divisions (e.g., ensuring that learning is accessible in multiple modes of expression, providing student-centred learning, and making student past learning feel valued.) and how these strategies impact their teaching practice. Some inclusive frameworks have been established in the literature based on their ability to differentiate instruction and make learning more accessible to a range of learners. Inclusivity has a wide range of definitions (Brackenreed, 2011); in this study, inclusivity will be defined as learning that is designed to be accessible to all types of learners at the point of instruction in order to ensure that they are included in a safe, engaging atmosphere that provides a rich learning environment (Florian & Black-Hawkins, 2011). I privilege the term "inclusive" because it implies that curriculum is shaped around the needs, interests, competencies, and dispositions of contemporary students given their exposure to the communicative landscape. A selection of inclusive frameworks could include Bloom's taxonomy (Anderson, Krathwohl, & Bloom, 2001), studies in metacognition (Pintrich, 2002), design thinking (Brown, 2008; Denning, 2013), multimodal learning (Kress, 2009b), and 21st-century learning (Cope & Kalantzis, 2000). It is now time to convert these theoretical frameworks into classroom practice.

The implementation of the above pedagogies by new teachers in senior elementary and high school settings will contribute to new teachers' ability to be inclusive of their students in their instructional approach and philosophy as envisioned by a 21st-century space that acknowledges new competencies and epistemologies. Adopting design-driven, multimodal, and inclusive pedagogy inspired by the learning sciences will

allow students to use the affordances of technologies (images, audio, symbols, and multimedia) as a part of teaching and learning in order to better provide modes where students can better express their cognition. The teachers now joining the practice of education, whether they are currently or recently graduated teacher candidates, will be the new teachers of a generation that has grown up in a convergence culture (Jenkins, 2006).

The practices of these new teachers will become a substantial overall component of the practice of teachers across the province through generational turnover (Townsend & Bates, 2007). In order to assess whether these practices thrive within the practitioner culture of teachers, the perceptions of new teachers need to be surveyed. Such a survey would elucidate the views of new teachers and the specific needs to successfully accommodate the diverse learning styles of students. This would also provide opportunities for expression, foster creativity, and promote critical thinking skills and the cultivation of multiliteracies.

The world is changing and our students must cultivate the tools necessary to meet the expectations and demands of a changing 21st-century society, especially the need for affinities with new modes of expression (Cope & Kalantzis, 2000; Gee, 2009). An established avenue of research is implementing inclusive strategies to create safe, equitable learning spaces as a means of promoting creativity and critical thinking as well as skill development and personal investment in the learning of today's students (Abell, Jung, & Taylor, 2011; Denning, 2013; Self, Dalke, & Evans, 2012).

Background of the Problem

In response to these societal demands, teachers have to be increasingly tactical in how they organize lessons in order to accommodate their students' learning practices.

The task of making learning accessible for all types of learners and to prepare students for jobs, opportunities, and tasks that do not yet exist requires a new paradigm in educational philosophy; it is one that connects students to learning rather than what is convenient for the traditional classroom. Such paradigms exist. Universal Design for Learning (UDL) and other similar inclusive frameworks are based on the premise that learners have unique needs and teachers can design their teaching to fit those unique needs. The process of inclusion requires the design of an accessible standard of practice, and draws inspiration from established topics including Bloom's taxonomy, studies in metacognition, design thinking, multimodality, and 21st-century learning.

Inclusion as an Approach

Much of the contemporary practice of new teachers loosely aligns with ideas of inclusion, UDL specifically (Saavedra & Opfer, 2012). A potential barrier to inclusivity stems from a lack of multimodal design elements as well as an incomplete mastery of inclusive practices from the learning sciences to build on affordances of media and technologies. To this end, a set of guidelines for aligning teaching practice with the principles of UDL was created (CAST, 2011). These guidelines are an integrating framework that makes use of a range of inclusive pedagogies and provides their benefits as a design philosophy for teaching practice. The CAST guidelines are a graphic organizer of UDL principles recognizing barriers to learning, tactics for removing them, and the desired outcomes of student learning (CAST, 2011). They serve to shape learning more on contemporary digital epistemologies and it makes learning more accessible for students with a variety of backgrounds, interests, and dispositions (Rappolt-Schlichtmann et al., 2013).

Universal Design for Learning and Inclusivity

The principles of UDL required a structured approach to ensure that the outcomes could be reached systematically. This necessitated the development of a stable framework for implementing UDL-aligned teaching. The *Universal Design for Learning Guidelines—Version 2.0* is an updated and revised vision of these goals (CAST, 2011). The guidelines propose three clusters (Representation, Action/Expression, and Engagement) each composed of three strategies for improvement. Each strategy is then further explored with proposed actions for implementing them in teaching practice (CAST, 2011). The overarching vision of this resource is to provide strategies for implementation of accessible inclusive practices. Therefore, each strategy is tailored to represent an application to contemporary teaching.

Hence, UDL provides a valuable array of tools for teachers and students in cultivating an intellectual culture of accessibility and growth by drawing inspiration from an array of contemporary learning sciences including multimodality (Cope & Kalantzis, 2000; Gee, 2009; Kress & Selander, 2012). Furthermore, frameworks like UDL also function to provide students with opportunities to take intellectual risks and gain confidence in their ability to shape their knowledge, succeed in schooling, and thrive in society.

A classroom based on UDL is designed to provide flexibility in terms of the tasks and mode of learning for a set expectations (Rappolt-Schlichtmann & Daley, 2013). UDL principles seek to provide options for accessible student learning by providing multiple means of perception, action, expression, and engagement. Students are also encouraged to build on their previous knowledge and to share these experiences with their classmates

(CAST, 2011). This makes their learning valuable not only to themselves but to others as design provides a rich learning opportunity to showcase a variety of perspectives to other students. For example, a culminating task in a class that I led required students to design and perform a proposal to save a local ecosystem. Students were given the opportunity to apply their learning along with the skills that they had acquired to make a multimedia presentation on their chosen topic. The result was that students spoke from the heart with facts that they had learned in this and other past courses. This manifested as engaged students who referenced their past narratives and learning. Therefore, they had designed, reflected, and performed with their unique learning. This would empower students by valuing their narratives and giving their past learning credibility (Franks et al., 2013).

In my experience, making a conscious choice to embrace many of the component pedagogies involved in making teaching and learning accessible is the first step in a series of pedagogical choices that has made my teaching better. Designing tasks and tests in such a way that I assess students as they are—rather than as a traditional test would require—results in a far superior type of learning and engagement. This same practice applied to my teaching in a university setting resulted in an expansion in the quality, frequency, and confidence of participative contributions in the learning space, be it collaboratively, independently, or formally. Providing these opportunities through UDL required a consistently growing pool of knowledge in inclusive pedagogies, and their implementation as pillars of my practice and particularly of design thinking.

Design Thinking and Inclusivity

Design can be thought of as essentially the process of invention and innovation. This is an intangible process of planning and developing purpose or intention that

motivates the synthesis of new ideas and products. Design is a broad field with a myriad of applications ranging from more comfortable chairs to creating compositions like "Moonlight Sonata" (Self et al., 2012). One common thread is liberation through expression (Kangas, Seitamaa-Hakkarainen, & Hakkarainen, 2013; Yelland, Cope, & Kalantzis, 2008). Students are often limited in their thinking by the parameters of an assignment (Evans & Williams, 2010). Instead of restricting students' thinking to the confines of rigid expectations, one option would be to alter assignments so that there is more choice. Students are then free to select a mode that might suit their learning and to express their knowledge in any way they see fit, so long as it meets the expectations of the assignment.

When students create something from the concepts they have learned, using the skills they have learned from many of their courses, their learning is crystallized in an exercise that necessitates a high level of engagement, and personal investment (Kress & Selander, 2012). These innovative practices encourage collaboration and creativity (Paul & Elder, 2007), and higher-order cognition (Anderson et al., 2001; Storkerson, 2010). Design thinking can have the ability to make the theoretical, tangible. It can serve to make our rawest and most abstract knowledge take on a concrete form (Folkmann, 2010). Making use of this capability in the classroom requires a perspective and philosophy uncommon in contemporary teacher practice (Kress, 2000).

One of the ways that I have added design-based approaches to my practice is by adding assignments that are driven by creating *with* knowledge. For instance, a review assignment for a unit (or perhaps an entire course) where students create an encyclopaedia consolidates their learning by combining their narratives from life, their

learning from the unit, and the resources at their disposal. There are few restrictions on the assignment; it must convey their learning of the material, demonstrate a review of the relevant materials, and be in a tangible form that can be appreciated more than once.

Students have composed short stories, scrapbooks, works of arts with a written explanation, and one student gave a moving speech about the importance of the material. With encouragement and the opportunity to pursue their own thinking, students found innovative uses of technology to deliver their created vision of the material. The narratives of learning that they exhibit reflect their growth in classroom, virtual, and real-world settings. Students designed a review for the material of the course and by doing so engaged deeply with the material and developed skills of expression. These skills are transferable to other fields and are crucial to being able to communicate effectively with others through a range of modes of communication (Bezemer & Kress, 2008).

Multimodal Learning and Inclusivity

The new interdisciplinary fields that are emerging from traditionally separate disciplines value the ability to pull threads of knowledge from multiple subjects and apply them in tandem (Cope & Kalantzis, 2000). This makes use of the richness of perspectives obtained from collaborating with students on an interdisciplinary task where synergistic answers come from different thinkers. This makes teaching practice more authentic in that it assesses whole students, rather than only in the course and topic at hand. This perspective would serve to provide a more appealing model for lessons to incorporate more of students' past experiences as opposed to making their past learning essentially disposable by subjugating it in favour of the current lesson topic. Valuing of knowledge in this way would benefit from additional accepted modes of demonstrated

learning as students present their narratives best in differing modalities depending on their learning style (Denig, 2004).

The inclusion of multiple modalities of expression also connects with the theory of multiple intelligences (Gardner, 1985, 1999). Therefore, effective design of lessons and resources requires a working grasp of multimodality, multiple intelligence, and universal design to ensure that there are modules in a given lesson that appeal to the range of learners.

Students in school are tasked with making meaning of the content made available to them during the process of schooling. The communication of content is partially composed of signs and cues, which illustrate the importance and potential value. Recognizing these cues and making meaning is just one of the necessities of schooling. However, developing the skill to decipher these symbols in our students will prepare them for their life after schooling as the world is filled with these signs and symbols (Kress & Selander, 2012). Having students express themselves in more than just writing will develop this often-used skill. The addition of activities such as creating graphic organizers or interpretive media studies will expose students to modalities they may not be familiar with and provide opportunities to advance their critical thinking (Paul & Elder, 2007). In fact, one way to empower students is to provide a real-world scenario and present a contemporary challenge. This avenue of expression values their learning both inside and outside the classroom, which encourages them to bring their personal narratives into the classroom coupled with their recent learning. This fits in a constructivist model by unifying their past mental constructions with their current learning and lends itself to UDL (Rappolt-Schlichtmann & Daley, 2013).

Our technological practices in school have not kept up with the technological capability in society (Kress, 2009b). Our students have developed affinities with technologies that many of our teachers have never even encountered. This affinity sometimes can be intensely opposed in the conventional classroom as mobile technologies are largely suppressed and viewed as nuisances diverting attention from the teacher at the front of the room (Moylan, Derr, & Lindhorst, 2013). Thus, instead of making use of the skills our students have, sometimes it can be marginalized as an affront to traditional student roles. The capability that most students demonstrate with technology is evidentiary of higher-order thinking particularly in the ability to create new products in an interactive environment like social media (Kress & Selander, 2012). Considering and implementing tasks that utilize this affinity for technology would provide opportunities for learning tasks to be more engaging. As well, this would be a method for assessing students in a way in which they are strong rather than where it is convenient.

In the previous example from my practice, students were free to present their learning in a format with which they were comfortable with creating a truly unique and personal work that gave their learning a tangible form. The process of creating is an inherent talent for most people; that is to say that people tend to make places, objects, and events uniquely their own (Paul & Elder, 2007). They transpose their schemas and habits into almost everything they do. An open-ended activity like the review assignment I handed out allowed students to do just that. They made the learning their own by designing with their knowledge in any mode they saw fit. Students when designing and expressing their learning through a variety of modes are exhibiting higher-order thinking

because they are evaluating, synthesizing, and creating as described by Bloom's Revised Taxonomy (Anderson et al., 2001). The revised taxonomy would also integrate the principle of metacognition, a crucial inclusion in my practice that I will discuss later in this chapter.

It has been established in the literature that capability in higher-order thinking is one of the desired outcomes of the education process (Bezemer & Kress, 2008; Gacenga, Cater-Steel, Toleman, & Tan, 2012; Krathwohl, 2002; Kress, 2000; Roll, Aleven, McLaren, & Koedinger, 2007). This can be coupled with a need to cultivate a climate of critical and creative thinking where students can apply their learning from multiple disciplines at once (Anderson et al., 2001; Cope & Kalantzis, 2000; Gardner, 1985, 1999; Gee, 2009; Kress, 2009b; Paul & Elder, 2007). Promoting the growth of these skills is a matter of both debate and importance, especially in terms of how to go about fulfilling this lofty goal. One such avenue worthy of exploration in developing these skills is UDL and other inclusive pedagogies to promote accessible learning spaces.

Bloom's Taxonomy and Inclusivity

The *Taxonomy of Learning Objectives* is an ordered set of learning-objective statements intended to reflect and nurture the desired outcomes for students after instruction. Practitioners can benefit from the structured opportunity for reflection of the goals in order to ensure student accessibility for learning. Benjamin S. Bloom, the primary author, enlisted the aid of a group of measurement specialists, with whom he met twice a year for 7 years, culminating in the publication of *Taxonomy of Learning Objectives: The Classification of Educational Goals* (Anderson et al., 2001). The taxonomy hosted three domains; cognitive, psychomotor, and affective which can be

simplistically condensed to head, hands, and heart (Anderson et al., 2001; Krathwohl, 2002).

The original taxonomy provided well-developed definitions for each of the original six categories of the cognitive domain: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation as well as looser qualities that would impact effectiveness in the psychomotor and affective domains (Anderson et al., 2001; Krathwohl, 2002). Initially, the taxonomy was mainly ignored when it was first published, mostly because of the unfamiliarity of educational scholars with the word "taxonomy" (Krathwohl, 2002). Once the potential of the dramatic changes proposed in the text was rediscovered, the taxonomy would go on to become one of the most widely cited texts in the field and would permeate the very fabric of education (Krathwohl, 2002).

Bloom's taxonomy provides a structural framework that affords me an opportunity to tailor my practice to include activities that appeal to the three domains and to include different levels of thinking to build upon previous learning. I interpret this to mean that once students have encountered conceptual knowledge, they are ready to do more advanced thinking including analysis and evaluation, with the goal of eventually designing with that knowledge. Whereas design provides a format for expressing learning and multimodality provides a variety of methods, Bloom's taxonomy informs the next steps, illustrating what the next steps for students could be. Metacognition, a new addition in the revision of Bloom's taxonomy (Krathwohl, 2002), adds a layer of reflectivity about what students are doing and how they might best proceed for their own continued growth.

Metacognition and Inclusivity

Metacognition can be thought of as "thinking about thinking." That is to say that how we strategize about our knowledge can shape the way that we apply it. Students require this skill in order to discern fact from fiction as well as to glean bias from objectivity. This focus of research has proliferated since the publication of the original taxonomy and now explores how students think about thinking (Pintrich, 2002) and examines how students become more knowledgeable about their thinking. Often, knowledge is taught as a basic competency, rather than a true scaffold to build upon (Roll et al., 2007). This is because students have been taught to the test for too long; they have had curiosity selected against because they have no outlet for expression (Paul & Elder, 2007). They do not have to think about their thinking, merely substitute their recalled concept into the answer. By providing opportunities for and an emphasis on higher-order thinking students can be taught metacognition, not merely encouraged to develop it on their own (Roll et al., 2007).

As previously mentioned the revised taxonomy added metacognitive knowledge to the cognitive process domain. This reflects an emergent valuing of the strategies and the reflective practices that make one successful (Anderson et al., 2001). A growing consensus of literature supports the move to consider metacognition as a critical part of meaningful education reform (Bryce & Whitebread, 2012; Cannon & Feinstein, 2005; Crowe, Dirks, & Wenderoth, 2008; Forehand, 2010; Krathwohl, 2002; Pintrich, 2002; Roll et al., 2007; Thompson & Luxton-Reilly, 2008). This is to reflect the new understanding that knowledge and the process of cognition are different things (Anderson et al., 2001).

Another reason for the consideration of metacognitive knowledge in the revised taxonomy is that it impacts student learning in terms of how students approach tasks. Because all strategies are not appropriate for every situation, students must develop a schema for when different approaches are the most effective (Pintrich, 2002).

A goal of my practice is teaching students that they are allowed to implement a variety of tools to accomplish their goals. When asking for students to describe how DNA replicates, I am just as happy to hear a detailed description, see a diagram that shows the different enzymes in action, or see an animation that they made. All of these illustrate their learning of the material. Once students know what modes of explanation works for them to learn, it will not be long before they know what mode would best express their knowledge. Students therefore will strategize about how to best approach challenges as they encounter them; exercising metacognition in determining what design and modalities of expression would be best suited to the task at hand. The ability to decide, design, and implement varying modes of expression would lend itself to making the most of the new modes.

Twenty-First Century Learning and Inclusivity

Twenty-first century learning can be thought of as a growing repository of skills, sometimes referred to as literacies, which can enable students to succeed in the information age. Some of these skills include creativity, critical thinking, constructing meaning, bias assessment, and interpersonal and intrapersonal skills (Cope & Kalantzis, 2000). These skills can be simply condensed into the four "Cs": critical thinking, creativity, communication, and collaboration (National Education Association, 2010).

Within the boundaries of school, it may have once been acceptable to learn concepts and skills only for use in that discipline. In the real world, these disciplinary boundaries are less distinct and increasingly irrelevant (Gee, 2009). Successful students utilize the skills gained from a variety of disciplines and apply them in tandem. An adaptive student will use knowledge and skills gained from many disciplines to solve problems in any one task. Skills learned in a biology class such as investigating can be easily and beneficially implemented in a media class to research societal perceptions.

The skills that characterize 21st-century learning, like the previous pedagogies synergize with both design thinking and multimodal learning. While 21st-century skills are often focussed on the 4 "Cs," design thinking and multimodality provide avenues for developing and utilizing these skills. A particularly well-rounded lesson or task might be analyzed to have dimensions reminiscent of exploring multiple orders of thinking (Bloom's taxonomy), giving students opportunities to strategize about how they might engage with the task (metacognition), and afford an opportunity to develop skills like collaboration by having students work in groups (21st-century learning). If students are designing a product with their knowledge (design thinking) and exhibiting that design requires the use of multiple modalities (multimodal learning) then the task will have students using all of the above pedagogies. The encyclopaedia review assignment I handed out on my first placement was an early and rudimentary attempt at striving to be inclusive utilizing the pedagogies I had learned in my teacher education.

UDL as One Model of Inclusive Practice

One potential way to weave all of the previous inclusive pedagogies and strategies into an effective theoretical framework would be to practice teaching as envisioned by

UDL (Rappolt-Schlichtmann et al., 2013; Rose & Dalton, 2009). UDL is a teaching philosophy based on cognitive neuroscience, design methodologies, and inclusive pedagogies with the intent to create flexible learning environments that accommodate the wide range of learning styles of students by removing obstacles to their learning (Meo, 2008). These obstacles can be in the representation of information, the modes of expression, or means of engagement to students (Rappolt-Schlichtmann et al., 2013). The proposed solutions to these problems are providing options in how lessons and their content is conveyed.

In response to the barrier information being represented in a potentially inaccessible way, lessons should be driven by a variety of modes including language, pictorial, affective, and kinesthetic components. Information expressed in a variety of modes will reach and resonate with more students simply by virtue of being easier to conceptualize (Bezemer & Kress, 2008). Applying this finding to our practice would suggest that having lessons that appeal to a broader selection of learning styles would make learning much more accessible to our students (Rose & Dalton, 2009). This would make use of the aforementioned design strategies in a way that would make lessons more compatible with the learning styles of students as they can better connect with certain learning strategies.

In response to barriers to student expression instigated by having a one-size-fits-all model, assignments and assessment designs should instead present a range of options for how tasks can meet the desired expectations (CAST, 2011). This would include alternative means of expression, such as multimedia, narratives, blogs, photo-essays, and portfolios, in addition to more traditional styles of assessment. Students learn effectively

when they are on the edge of their ability, such as when they encounter new types of knowledge and activities (Vygotsky & Kozulin, 2011). Therefore, students have the best opportunity to express their learning when they can choose from a selection of assignment modalities (CAST, 2011).

In response to the barriers to student engagement, teachers should accept new forms of expressed interest in their students. Students can benefit from being allowed to determine their own goals and objectives within the expectations levied upon them (CAST, 2011). Rather than demanding that students meet expectations in a predetermined way, students can meet expectations in often surprising ways. Our perceptions of knowledge attainment have changed (Kress & Selander, 2012). Learning now tends to be more of a shared responsibility of the student to engage and the teacher to communicate learning in a way that a student can access the meaning and thrive (Kress, 2009b). In order for teachers to successfully appeal to different learning styles, a substantial knowledge of UDL is necessary (Rose & Dalton, 2009). New teachers will likely recognize the name as the UDL framework is referenced often as a best practice. However, in practice new teachers do not receive prolonged training in the tenets or benefits of designing lessons and building their teaching practice with UDL in mind. While this leaves new teachers with something to strive for, it leaves them to strive without sufficient support. In order to determine what should be done to remedy the situation, the current perceptions and knowledge base of new teachers should be surveyed.

In fact, the above pedagogies functioned to elicit a meaningful, accessible, and safe learning environment that I now realize is the end goal of UDL as well as other

frameworks for inclusion. UDL is one framework for developing a model of inclusion, but there are others that are structured differently, such as Tribes (Benard, 2005), which are approaches to the goals of inclusion in the classroom. Though the names and specific strategies may differ, their goal is developing a safe, accessible learning atmosphere where students can learn. This research is aimed at examining where Ontario's next generation of teachers stands on the issue of inclusive practice. In particular, what is their state of readiness, and what are their needs for further development of inclusive practice?

Statement of the Problem

According to the Ontario Ministry of Education, approximately 17% of students in Ontario access and make use of special education services (as cited in People for Education, 2013). This includes students who are formally identified and those who access special education resources. The teachers who will carry on the responsibility of providing education for these students are graduating from the 13 Faculties of Education in Ontario. New teachers face much the same wide range of challenges as experienced teachers to have students thrive in the classroom (Rose & Dalton, 2009). Namely, they must find a way to reach every student and provide opportunities for self-actualization and critical thinking as well as cultivate social skills compatible with the incredibly wide range of learning styles and special needs of the next generation (Rappolt-Schlichtmann et al., 2013). This has been referred to as differentiation (Kong et al., 2014; National Education Association, 2010), as not all students learn the same way. New teachers must do so with much less seasoning and experience. This leads to the question of whether they have been given every possible tool in their task to inclusively educate the students of Ontario.

In particular, new teachers should accommodate the learning styles of all their students in order to provide the best possible educational setting for student success. As established by Bloom's taxonomy, effective learning has three overarching domains: cognitive, affective, and kinesthetic (Anderson et al., 2001; Bloom, Englehard, Furst, Hill, & Krathwohl, 1956). Cognitive is envisioned to deliver skills and content, while affective is emotionally developmental, and kinesthetic advances movement and technical skills (Krathwohl, 2002). In teaching practice these domains are manifested as students learning more effectively with differing learning styles (Anderson et al., 2001; Gardner, 1985). These learning styles include: kinesthetic thinkers who learn by doing, auditory thinkers who learn by listening, and visual thinkers who learn graphically and many more.

The careful consideration of how our instruction is designed can lead to well-rounded lessons that consider how all of our students learn. One such example is backwards design, where the desired outcome grounds every step taken towards it (Drake, 2007). What students learn becomes what they can do and eventually what they will be. In the information age, students are expected to discriminate between what is important and what is not. This process is difficult at the best of times, and not helped with the fact that extraneous information is added onto the overwhelming pile of content that our students encounter on a daily basis.

Further complicating the situation, some of the content is tested and then never valued again (Kress, 2000). Our students have more information than ever before in human history; this access has made education dependent entirely on memorizing information, largely pointless (Kress, 2009b). The ability to decipher this information and

glean what is important has increased exponentially in importance as the amount of information that students are exposed to has increased exponentially. Being a competent learner within the context of traditional schooling may once have consisted of remembering obscure facts, and reciting them loudly whenever called upon. Students in today's society are required to shape the information they come across and express it in a variety of modes in order to successfully interact with society (Cope & Kalantzis, 2000). Expression in numerous forms necessitates a higher order of thinking as the ability to create with knowledge requires such depth and engagement as to make meaning (Kress, 2009b).

This understanding leads to the difficulty of being an effective educator. Teachers are expected to teach every student, not only the ones who learn how they would prefer to be taught. This means making their lessons multimodal and accommodating the aforementioned diverse array of learning preferences. They are also expected to serve as a conduit for student development in multiliteracies (Cope & Kalantzis, 2000) and learning skills as outlined by the Ontario Ministry of Education such as responsibility, collaboration, self-regulation, independent work, organization, and initiative (as cited in People for Education, 2013). Quite simply, how is one to prepare in order to do all this? With the continuity of society on the line, there is little room for error in developing the next generation of society.

As a new teacher, I taught both senior science and humanities classes, and in doing so, I taught a range of high school grades and streams. The unifying theme in successful teaching became integrating modes that appealed to my entire class as outlined in UDL. Oftentimes, this placed me outside my comfort zone and enabled me to expand

my teaching arsenal to include new approaches for teaching including multimedia, graphical depictions, narratives, and art-based learning. UDL principles are instrumental in my teaching experience and as corroborated by the literature should be an integral part of teacher practice, everywhere.

Purpose of the Study

The purpose of this study is to determine the perceptions of new teachers and their needs to successfully implement inclusive frameworks in their teaching practice. New teachers will gradually succeed outgoing educators, because their perceptions serve as a harbinger of where education in the province is heading. Therefore, capturing a snapshot of the ideologies entering the educative workforce would be of great value to the field at large in establishing what contemporary practice is.

Research Questions

The main questions addressed in this research into new teacher perceptions of inclusive pedagogies are:

1. How do new teacher perceptions of inclusive pedagogies align with their capacity to teach them?
2. In what ways do new teacher philosophies demonstrate alignment or lack of alignment with inclusive pedagogies?
3. What do new teachers need in teacher education to develop their inclusive practice?

Rationale

Although the notion of "inclusive practice" has been around for some time, applying the term to 21st-century teaching is relatively new. The presence of UDL and

inclusive resources in literature has not necessarily been fully realized in practice (Rappolt-Schlichtmann & Daley, 2013). Teachers are cursorily aware of the existence, value, and theoretical basis of inclusive practices, but not of the process of the methods of application that would benefit their students. New teachers may assess the cost/benefit ratio and decide that inclusive practice is too much of a hassle, despite its impressive benefits (Rose & Dalton, 2009).

The findings of this research could contribute to the educational inclusion literature and be a starting point for future research in this field. Specifically, it would reveal the needs of emerging teachers and potential new directions for course curricula. The findings may reveal areas in need of improvement as well as areas in which courses perform well in developing skills and knowledge of inclusive pedagogies. From a theoretical perspective, this study can contribute to the ongoing transformation of teaching practices to reflect inclusion-aligned pedagogy in Ontario classrooms.

Scope and Limitations of the Study

The scope of this research was limited by its eligibility criteria, timing, location, and availability of participants. Participants were required to be new teachers in the same teacher education program. This would ensure that their knowledge of best practice was from much the same source, therefore allowing generalizability to extend to the program as a whole. The timing of this research would ensure that all participants had not yet begun professional practice. Participants were all from the same geographic region, having taken analogous courses from professors in the same faculty of education at a southern Ontario university.

Outline of Remainder of the Document

While chapter 1 provides an introduction and illustrates the background, rationale, and impetus of this study, the chapters that follow provide a much more detailed discussion of the literature, methodological exploration, analysis, and discussion of implications of this research. Chapter 2 explores and reviews the literature of theories and inclusive practices relevant to this study. The chapter features sections on Bloom's taxonomy, metacognition, design thinking, multimodal learning, and 21st-century learning. Chapter 2 weaves together the disparate theories as sources of inspiration for practitioners aligning their teaching with principles of UDL and other models of inclusion. Chapter 3 discusses the research design, methodology, data collection, and analysis that form the grounding for this study. Included in chapter 3 is an articulation of researcher positionality, methodological assumptions, and consideration of ethical concerns associated with this study. Chapter 4 presents the findings of the research. Lastly, chapter 5 summarizes the research conducted, with emphasis on the theoretical and practical implications elucidated, while outlining possibilities for future research and conclusions drawn.

CHAPTER TWO: LITERATURE REVIEW

The nature of the change in pedagogy is a topic of fierce debate. One potential solution would be to look to established paradigms in the literature including higher-order thinking and design thinking. The following is a review of educational research on Bloom's taxonomy, metacognition, design thinking, multimodal design, and 21st-century learning, and their respective applications in inclusive teaching practice.

Contemporary literature in education has reflected upon and revised the *Taxonomy of Learning Objectives* and evaluated its efficacy as a tool of educational structuring (Anderson et al., 2001; Bloom et al., 1956; Crowe et al., 2008; Gardner, 1999; Krathwohl, 2002; Paul & Elder, 2007; Yelland et al., 2008). Bloom's taxonomy continues to serve as a catalyst for further research in educational organization and categorizing the objectives of effective teaching. The order of the taxonomy has changed to reflect the best practices of today and to offer the best prospects for the future, the value of the taxonomy as a central pillar of effective educational practice has not.

In contrast to the established value of the taxonomy, design, more commonly also known as design thinking, is an emergent field in the study of education. A growing pool of literature examines design thinking's implications for education (Bezemer & Kress, 2008, 2010; Edyburn, 2010; Gacenga et al., 2012; Gee, 2009; Kress, 2009b; Kress & Selander, 2012; Makri, Papanikolaou, Tsakiri, & Karkanis, 2009; Rowsell & Burke, 2009; Sutton & Kemp, 2006). The variety of perspectives is overwhelming, but there is unanimous agreement in applying the diverse learning from other design fields to education. Of particular interest is the semiotic perspective of linguistics and the methods of making meaning associated with effective communication and design of multimodal communication (Kress, 2009b).

The value of combining the frameworks is that they feed into each other and act to build on one another. The emphasis on higher-order thinking and improving the access to learning in schools has created an impetus for investigating alternatives to and challenging the status quo of traditional lesson modes; in other words, 21st-century learning. The shift in societal access to information has forced a change in paradigm to

focus on developing skills like design, as opposed to developing an encyclopaedic knowledge. This has led to a more inclusive, skills-based education as opposed to a competency, transmission model that results in many learner types being excluded (Florian & Black-Hawkins, 2011). This focus on design helps to develop a student's cognition through higher-order thinking skills, a focus indicative of 21st-century learning (Cazden et al., 1996; Cope & Kalantzis, 2000). The objective of schooling should not be to develop dictionaries. Schooling should cultivate lifelong learners who have the skills to make meaning of the data bombardment that is the information age and have ethos to continue to learn and thrive in their personal narratives.

Reflexivity

When asked who I am, I have the unusual habit of pausing and thinking about it, and then responding that I am a scientist stuck in a teacher's body. I often find that the best solutions to problems within a discipline often come from outside the discipline. If the solution was already part of the discipline, there would not be a problem in the first place. By its very nature, education should not be considered a single discipline. Education is responsible for the development of minds that will one day continue the advancement of all other fields, therefore it should not be viewed as one field. Since my chosen field cannot be classified by one discipline, why should I? In looking to other fields for inspiration, I found it in Bloom's taxonomy and UDL as catalysts for my own development of inclusive practice.

In my teaching practicum, I assigned tasks and gave out tests. The tasks I was the most confident in were the ones where students were encouraged to design and create with their knowledge. I found that they were personally invested in and demonstrated

greater mastery of the learning than on any other type of assignment I gave out. One particularly moving example was a review assignment I gave out to my class for the Diversity of Living Things strand of Grade 11 Biology. I had students summarize their learning by designing and creating an Encyclopaedia of the unit's concepts in any format that demonstrates the units overall objective. This turned out to be the assignment that I challenged the class with and then got out of their way. The resulting assignment submissions were incredible. Students who did not participate in class submitted assignments that demonstrated their amazingly unique talents and mastery of the subject in forms of expression and intelligence I could not have expected. This proved to me that investing in higher-order thinking, design thinking, and the methods to unleash them in classrooms would add potent tools to my teaching arsenal. By giving students a choice in how they met my expectations, I assessed students in an authentic way aligned with the theory of multiple intelligences. Continuing and sustaining this alignment would require a fundamental change in paradigm on my part.

The first public systems of education were in response to the need for literate and mechanistically competent workers. Learning was profoundly focused on memorization. The demographics of society have changed both in population since the Second World War as well as in terms of economic and cultural valuing of knowledge (Kress, 2009b). Understanding one instance of a phenomenon, even if it is the most common occurrence, is not as valuable as being able to theorize. Higher-order thinking should now be valued more than competency. Hence, my assertion that having students design and inquire for their knowledge concentrates on cultivating the ability to create with their knowledge, and this virtually assures me of their mastery of the material. This is for the purpose of

developing transferable skills and literacies that can be successfully applied to any subject (Drake, 2007; Gardner, 1999). These skills and literacies are at the heart of 21st-century learning and therefore, and to me, are of paramount importance.

UDL, and inclusive education at large, has drawn inspiration from design thinking, the *Taxonomy of Learning Objectives*, studies in metacognition, and multimodality (Florian, Young, & Rouse, 2010). Therefore, it provides a valuable array of tools for teachers and students in cultivating an intellectual culture of accessibility and growth by drawing inspiration from an array of contemporary learning sciences including Bloom's taxonomy (Anderson et al., 2001; Bloom et al., 1956; Krathwohl, 2002); metacognition (Pintrich, 2002; Roll et al., 2007; Saab, van Joolingen, & van Hout-Wolters, 2012; Veenman, van Hout-Wolters, & Afflerbach, 2006); design thinking (Denning, 2013; Gacenga et al., 2012; Williams, Evans, & King, 2011); and multimodality (Cope & Kalantzis, 2000; Gee, 2009; Kress & Selander, 2012). Understanding the current thought in the connecting literature will provide a valuable grounding in the state of educational thought on inclusive practice. It will also establish one of the major sources for new teachers to consult in their own instructional practice.

Bloom's Taxonomy

As previously mentioned, the *Taxonomy of Learning Objectives* is an ordered set of learning objective statements that reflects the desired outcomes for students after instruction. The taxonomy hosted three domains—cognitive, psychomotor, and affective— correspond to head, hands, and heart (Anderson et al., 2001; Krathwohl, 2002). The original taxonomy provided well-developed definitions for each of the original six categories of the cognitive domain: Knowledge, Comprehension,

Application, Analysis, Synthesis, and Evaluation (Anderson et al., 2001; Krathwohl, 2002).

For decades, Bloom's taxonomy stood virtually unchallenged as the definitive inspiration for the evolving language of discourse in assessment of education. Quite simply, it advocates for an inclusive structure within the classroom that appeals to a variety of learning styles and for making lesson content more accessible. It transformed the way that education was discussed as the taxonomy provided a universal language for discussing and conceptualizing learning (Anderson et al., 2001). This unifying language of describing teaching objectives can be attested to Bloom's taxonomy's status as a seminal work (Krathwohl, 2002). Though it was first developed in the mid-1950s it has received extensive modification over the years, most notably in the form of the *Revised Taxonomy of Learning Objectives* (Anderson et al., 2001) which expanded, augmented, and clarified many of the more controversial and confusing tenets (Anderson et al., 2001).

Though Bloom saw the cognitive domain as more than the sum of its quantifying categorizing parts, he believed that it could create a common language of discussion for learning goals as well as serve as a platform for basing the criteria for achievement in school (Bloom et al., 1956). Krathwohl (2002) split the cognitive domain into the adjoining knowledge (which had been a subcategory within the cognitive domain) and the cognitive process domains. Though the scholarly focus has been on the cognitive process domain, there has been a renewed focus on inclusion of the psychomotor and affective domains. This had led to a change of paradigm in the literature to account for all the domains in learning theory (Denig, 2004). Therefore, only with the advent of the

revised taxonomy has the complete integration of the domains taken place within educational practice with knowledge and the cognitive domains often paired together.

The cognitive process domain within the original taxonomy was altered to better represent and apply to schooling best practices (Anderson et al., 2001). An example of this is how the entire cognitive domain is now in the form of verbs rather than subjective terms. This means that determining the order of thinking that a task requires is often as simple as checking the verbs in the questions. For example, in order to participate in the evaluation strand, a student would be asked to judge, decide, assess, appraise, consider, or evaluate something in a question. No more guesswork; simply look at the exhaustive list of verbs provided with each taxonomic strand.

The focus of the *Taxonomy of Learning Objectives* remains the promotion towards higher-order thinking, as the analyses conducted using both the original and revised taxonomy still show an overwhelming amount of lower-order thinking (Krathwohl, 2002). To generalize, the taxonomy has created a method of assessing the types of activities implemented in the classroom. There is still a disproportionately high accumulation of activities (understanding and comprehension) that miss the opportunities to foster higher-order thinking (applying, analyzing, evaluating, and creating) because of their dependence on recalling, recognizing, and remembering information. These lower orders of thinking marginalize much of student past learning, thereby excluding one of their most potent sources of knowledge.

One of the most visible categorical changes in the taxonomy was the movement of “synthesis” to the very apex of the taxonomy and it being renamed “creating” (Anderson et al., 2001). This movement was to emphasize the importance of forming

mental constructions that necessitates designing and creating from previous learning, utilizing the knowledge from all domains. This re-positioning has placed activities that synthesize and promote creativity and often, but not always, critical thinking to be excellent and valid summations of learning. For example, Performance Assessment Tasks allow students to include their past learning as a supplement to the current concepts. Thus culminating activities such as reviews necessitate such breadth of knowledge and robust thinking as to require all levels of the previously mentioned cognitive domain and integrate their past learning (Paul & Elder, 2007).

Bloom's Taxonomy in Schools

In more practical settings like in schools, Bloom's taxonomy can also be useful in that it helps one plan and follow through with best practices (Anderson et al., 2001; Krathwohl, 2002). It can ensure that lessons are accessible to a variety of learners by having cognitive, affective, and psychomotor components. This corresponds with 21st-century learning (Cope & Kalantzis, 2000; Gee, 2009). It also helps determine the type of cognitive process such as whether an activity is rote recall (remember) or higher-order (evaluating or creating). Identifying which activities require differing echelons of thinking can foster a productive balance of higher-order and more simple tasks (Krathwohl, 2002). In this regard Bloom's taxonomy is a useful tool to teachers for tracking and meeting educational objectives. As well, a significant understanding of Bloom's taxonomy is a necessity for educational scholars and teachers as the terminology of the taxonomy has permeated the vocabulary in the field because of its seminal status. The everyday buzzwords and contemporary scholarly discussion of assessment revolves around words popularized by the original *Taxonomy of Learning Objectives* (Anderson et

al., 2001; Krathwohl, 2002). In addition to the day-to-day management of lessons and assessment, from their understanding, teachers can use the taxonomy to make better decisions about how to teach their students in terms of their long-term instructional focus (Krathwohl, 2002)—for example, using simpler tasks in the beginning of a unit to build towards higher-order thinking with the same material later on.

The *Taxonomy of Learning Objectives* proves useful when designing lessons as it serves as an advocate for including each of a cognitive, affective, and psychomotor component, ensures coherence in unit planning, and provides an avenue for alignment in course design. It also offers a method for stratifying learning based on the actions required to be taken, such as comparing remembering to analyzing, evaluating, or creating with their constructed knowledge. Numerous analyses of lesson and learning activities in school using the taxonomy has revealed an imbalance of thinking tasks, and therefore has ignited impetus for increasing the frequency and depth of higher-order thinking in schools. A major legacy of the taxonomy is the establishment of a language for discourse on assessment and learning objectives as curricular objectives are deeply rooted in the language popularized by Bloom.

It is my belief that creativity and synthesis are undervalued and infrequently utilized for optimal effect in schools. An older idea that has been revised in order to adapt it back into relevance is Bloom's taxonomy. In Bloom's revised taxonomy, creating is at the apex of orders of thinking as is reflective of the idealized status as the highest form of thinking (Anderson et al., 2001). It is not a leap to posit that activities that create are among the most effective opportunities to learn and construct meaning. Oftentimes, the best solution is a combination of two solutions.

The *Taxonomy of Learning Objectives* (better known as Bloom's taxonomy) can be effectively split into three domains: cognitive, psychomotor, and affective. The revised taxonomy made changes to the cognitive domain renamed the cognitive-process domain. In particular, the changes included the addition of metacognitive knowledge to the knowledge sector as a means of linking to the larger cognitive-process domain. The names of the orders of thinking were altered to be verbs rather than their original nouns in order to highlight the actions that constitute each order. Synthesis was renamed Creating, and was moved to the very apex of the taxonomy, with Evaluating directly below, the rationale being that the act of creating features a distinct evaluating component as well as further extensions of thinking including design (Krathwohl, 2002). The successful act of design demonstrates a high level of thinking that indicates a significant level of metacognition and a strong mastery of the new learning. Bloom's taxonomy gives critical support to contemporary literature and has served to spark even more research (Anderson et al., 2001). Despite early opposition, the *Taxonomy of Learning Objectives* would go on to permeate the field of education and serve as a catalyst for further research into investigating our educational thinking.

The reason for my emphasis on the taxonomy, revised and original, is that it broke successful teaching down into its components and advocated for an inclusionary perspective that urged educators to ensure that their lessons were well-thought out and well-rounded. The modern teaching phrase of "head, heart, and hands" is a colloquial summary of the domains posited by the taxonomy: cognitive, affective, and psychomotor. This early analogue to multimodality stated that learning can be facilitated by ensuring that it is presented in a variety of ways. UDL aligns with this goal by advocating for

providing options for perception by offering accommodating ways of displaying information. It also stresses the importance of providing alternatives for auditory and visual information, in case exclusive use of one of these modes is not conducive or inaccessible to a learner. My experience supports that learning, when presented in a variety of ways, encourages students to connect with and make connections between the connections among the concepts. Knowledge of Bloom's taxonomy is a building block to understanding the more advanced concepts that apply the knowledge.

Metacognition

Paul and Elder (2007) in their work "Creative Thinking: The Nature of Critical and Creative Thought" make the distinction that not all students will enter the classroom ready to create and evaluate effectively but, once they know how, all will be able to participate fully. All students can be included in this paradigm, once they have received the proper teaching and support. Therefore the skills necessary for critical thought and new age literacies have to be taught. Concepts are not taught to answer multiple-choice questions. Instead, they are taught to expand understanding and to develop skills that will accompany students through life; they should be prioritized as such. The skills that allow us to interface with challenges should not be taught only in the classroom (Cazden et al., 1996; Kress & Selander, 2012) this learning shapes our perceptions and determines our ability to create media and make meaning of opinions, literature, and other forms of information and stimuli.

The skills and the way that we approach learning are acquired and drilled whenever we learn something. Furthermore, Roll et al. (2007) state that the first echelons of thinking such as recall and explain act as a crutch to make do with rather than

advancing their metacognitive abilities. In contrast, higher-order thinking such as creation and synthesis construct a cognitive scaffold to build upon (Roll et al., 2007). The more often students operate on the edge of their capability and are supported by their peers and their instructors, the more they learn and the better they engage with the material through higher orders of thinking. This ability to create with knowledge makes an excellent vehicle for bringing in knowledge from other disciplines—a form of metacognition (Pintrich, 2002). This empowers students by giving them a voice in their studies and values their life experiences (Kress & Selander, 2012). By tapping into their unique life experiences and providing an outlet for their creative energies, students become more invested in their learning when they think about and create with their thinking (Krathwohl, 2002).

The inclusion of metacognition in schooling is supported by a myriad of authors (Afflerbach, 2006; Bryce & Whitebread, 2012; Franks et al., 2013; Pintrich, 2002; Roll et al., 2007) and they state that metacognition can be used when other types of knowledge do not apply, such as when a student has encountered a novel situation and has no relevant first-hand experience. Thinking about their thinking informs students on how to infer, interpolate and extrapolate solutions, and seek additional sources of data. As well it provides opportunities for an evaluation of self-efficacy; that is to say that students can reflect on their learning and achievements and develop a culture of asking questions (Pintrich, 2002). This serves to engage students with their learning and cultivates a drive to chase, critically think, and retain knowledge, rather than a simple willingness to accept what is offered.

UDL aligns with these emphases by providing options for comprehension (CAST, 2011). In particular, it breaks this process down into component principles. First, activating background knowledge rewards students for their past learning rather than neglecting it by marginalizing learning and re-inventing the wheel unnecessarily. If students know the content from past learning it is to their and their peers' benefit. Another way that UDL utilizes the advances in our knowledge of metacognition is the emphasis on highlighting patterns, critical features, and connectivity in conceptual knowledge. Connecting the dots and making meaning of the relationships between concepts is a crucial skill. The knowledge pool of the world in my experience is not only deepening but also thickening in that knowledge and ways of knowing are more connected than ever.

UDL supports this by encouraging that students are guided through the process of visualization, processing, and manipulation of information. This means that when the connections are made available students will soon be able to make connections on their own. This translates to students being able to analyze the information presented to them and be increasingly critical consumers of the new knowledge economy. By this I mean that as information technology makes more information available, our students are increasingly required to generalize and transfer their learning to new disciplines and contexts. This valuable skill is mirrored in the UDL principle that argues that lessons should be made to be more applicable to students' learning in a variety of fields, disciplines, and settings (CAST, 2011). As the contexts of society become more varied, so too must our learning spaces.

Strategic learners can also be developed by ensuring that lessons provide options for executive function (CAST, 2011). This can be facilitated by guiding appropriate goal-setting by supporting the development and planning of strategies. Helping students to make realistic goals and follow through with their plans will foster their ability to do this on their own—becoming strategic learners. UDL further aligns with developing metacognition by facilitating the development of information and resource management. This entails providing opportunities for organizing resources to overcome challenges like creating an argument from a set of facts. Doing so would also enhance students' capacity for monitoring progress and making their decisions from an informed state.

Another aspect of metacognition accounted for in the UDL guidelines is intrapersonal knowledge, particularly self-regulation. It does this by promoting the inclusion of expectations that optimize motivation. These expectations could include collaboration, open-forums, and other learning spaces that showcase student achievement to their peers. These learning spaces are a setting where students can test strategies as well as see the approaches that others took in order to build cognitive structures for how to approach problems. On the more individual front, establishing space for increasing personal coping skills as well as seeing other personal management techniques has potential for developing good self-regulation. A final practice shared by metacognitive education and UDL is the emphasis on opportunities for reflection and self-assessment. This consolidates the other metacognitive learning mentioned above, providing a safe space for strategizing for the next challenge, while reflecting on past successes and failures.

Design Thinking

Design can be thought of as a holistic process of creating goods, ideas, and constructs (Folkmann, 2010). Applied to education, this can mean the expression of conceptual knowledge through a vehicle such as a song, poem, or any other created mode of communication that holds meaning. Meaning making is a relative and often ambiguous term (Folkmann, 2010). It means, at least in terms of design or design thinking as it more formally is known, to take a theoretical abstraction and construct a mental framework around it (Folkmann, 2010). The boundaries of knowledge can be viewed as design, inquiry, and creation as it is in this realm that theory and practice come together to make products of past thinking (Storkerson, 2010), the tools of the present (Kress, 2000), and with an eye on the future (Folkmann, 2013). Students practicing design are no exceptions to this up-and-coming realization. As previously mentioned, students who design according to Bloom's revised taxonomy are creating. They are applying their past learning in a new and often unique way that takes into account their past narrative and all the tools of their cognitive toolbox and the highest of thinking orders (Anderson et al., 2001; Crowe et al., 2008; Kress & Selander, 2012). This makes the process of design, the deepest engagement a student can have with their learning.

What better way to demonstrate and engage student learning than to take the theoretical concepts and make them tangible? Design does exactly this. In terms of relevance to education, no one design discipline is more connected than instructional design, though others may have knowledge to offer. A leading scholar and often referenced as the founding father of multimodalities, Gunther Kress has published extensively in the field of semiotics (Bezemer & Kress, 2008; Kress & Selander, 2012;

Kress, 2000, 2009b). Kress and Selander (2012) in their paper "Multimodal Design, Learning and Cultures of Recognition" illustrate that design has the potential to bridge learning that takes place outside of school with the learning within. The examination of the modes within texts provides a new tool for analysis of lesson efficacy and potential improvement.

The general accessibility of information to students inside and outside the classroom should relegate rote-learning to a supporting role; the conventional wisdom of teachers now favours design over competency (Kress, 2009b). Design would serve to engage students with the material of the lesson by adding a dynamic element to conventional lessons where students have a voice in the final product and a vested interest in seeing their work succeed. It is better for students to be able to apply their knowledge in a variety of settings rather than recite a common example, even if it is the most common example. When constructing something out of previous knowledge, students must be able to think about it to such a complexity that they can deconstruct their knowledge and make meaning of it in order to create something new (Kress & Selander, 2012). Hence, the use of a design doctrine in developing instruction strategies is an application of current educational thought (Denig, 2004). Design is a very diverse field with a myriad of publications and lines of thinking. The following are some of the most pertinent ideas to education.

Connecting Design With Education

Contemporary educational thought features a focus on meeting the needs of the present society without sacrificing the ability to adapt to their future challenges (Clark & Button, 2011). Nurturing this ability for adaptation is well grounded in literature

advocating the proliferation of 21st-century skills (Cazden et al., 1996). The findings of STEM education (Science, Technology, Engineering, and Mathematics) are in part inspired by a unified focus on pulling together threads from previously distinct sustainability concerns: science, art, and community (Clark & Button, 2011; Scholz, Lang, Wiek, Walter, & Stauffacher, 2006). By teaching the three fields simultaneously in unified activities, it is far more likely to provide an accessible yet engaging experience because one of the dimensions may scaffold an appreciation for the others. This focus on developing means for incentivizing and rewarding the process of meaning-making would be an example of curriculum for the future (Kress, 2000). The design of curriculum should not be to transmit knowledge (Kress & Selander, 2012), but rather it should be designed to cultivate the impetus for the development of meaning making.

An example of this would be the exploration of alternative designs for learning, including video games and play-based learning (Sanford & Madill, 2007). Often, students who struggle with the literacy development in schools, thrive in the environment of processing information from video game settings. A change in the design of lessons can have dramatic, positive effects. As argued by Denig (2004), students have a variety of methods of learning; why should the style and mechanics of effective teaching be any different? Students will bring their own preferred methods of learning with them into the classroom and choosing to incorporate a variety of these into daily life in schools will facilitate the learning of content and skills in alignment with their capabilities and aptitudes for making meaning of the information.

Not all that design has to offer education comes from within the education-adjacent fields of design. An example of productivity-focused design processes with

relevance to design would be the IDEA framework (de Guerre, Séguin, Pace, & Burke, 2013). IDEA (Innovation, Design, Engagement, and Action) is a participative design process that would be easily transitioned to the classroom in such a way as to increase productivity, a process tenuously analogous to academic engagement and achievement (de Guerre et al., 2013). IDEA provides a structured regimen of activities for changing the dynamics of a self-contained culture, particularly activities that involve collaborative design components in which participants utilize their experiences from outside life to develop, innovate, and reflect in order to create solutions.

IDEA offers insight into new avenues for developing and integrating creativity in the classroom. The novel activities created for the Connect and Innovate phases are easily adapted to academic settings as group work is traditionally limited to a restrictive number of archetypes and patterns. IDEA has the potential to make group work more productive by creating a climate that minimizes redundancy and promotes the growth of skill. In particular, de Guerre et al. (2013) found that IDEA has the potential to dramatically alter our perceptions of the classroom by making conceptual knowledge a vessel to develop skills and solutions to real-world problems. In order to eliminate redundancy, students work on new problems rather than re-inventing the wheel; it offers a chance to wrestle with the problems facing society by providing a framework for developing new ideas and intellectual products to confront the new challenges.

The construction of products transforms the knowledge and skills students have into the learning, setting, and resources needed for success (de Guerre et al., 2013; Kress & Selander, 2012). The streamlining and converging of formerly disconnected ideas create a design-centred conversation that fosters participation, since students see their

personal narratives and experiences valued rather than overlooked in favour of being taught at (Pintrich, 2002; Selsky, Ramírez, & Babüroğlu, 2012).

Educational design in current literature features a prominent movement towards higher-order thinking (Chen & Venkatesh, 2013; Denning, 2013; Gee, 2009; Kress & Selander, 2012; Paul & Elder, 2007; Stolterman, 2008). One such movement is the implementation of inquiry-based learning where students learn by investigating phenomena and topics with which they may be unfamiliar. This type of learning has students construct on their previous knowledge by having them self-scaffold through, for example, the scientific method (Crowe et al., 2008). This method encourages self-investment by presenting a discrepant event, such as that a can of diet cola floats in water while a can of ordinary cola sinks. This challenges students to scrutinize the occurrence as it breaks with their existing mental structures, thereby gaining knowledge while they develop research and investigative skills. These transferable skills are easily applicable to other fields and is an example of design integration (Cazden et al., 1996; Cope & Kalantzsis, 2000; Gee, 2009).

There is a generational gap in attitude between the societal structures of power in place and the rising tide of youth who are supposed to reproduce (Palfrey & Gasser, 2013). As illustrated in the attitudes towards learning. Now, responsibility for learning is shared between learner and teacher, just as communication is the responsibility of both designer/sender and their audience (Kress, 2009b; Kress & Selander, 2012). Methods of communication have changed profoundly since the period after the Second World War. What has changed is a new understanding of how we design and make meaning with knowledge (Bezemer & Kress, 2010; Kress & Selander, 2012).

When constructing something out of previous knowledge students must be able to think about it to such a complexity that they can deconstruct their knowledge and make meaning of it in order to create something new (Kress & Selander, 2012). This change in paradigm from competence and memorization to constructing and design cultivates the very process of engagement, transformative learning, and meaning-making (Kress & Selander, 2012). This reflects the principle of UDL that promotes the utilization of a variety of methods for recruiting interest. One method I have found in my practice for recruiting and maintaining interest in the task at hand is to provide room for individual choice and autonomy in assignments. This means that assignments can be designed to make room for choices. These choices allow students to make the most of their unique skill set and develop creative skill. In my experience this also provides a means for authentic work that values past learning and makes the assignment and the educational objectives have greater relevance in the eyes of the student.

Design thinking also has the effect of providing options for sustaining effort and persistence—something that UDL as well as other inclusive frameworks strongly advocate (CAST, 2011). Offering options to students in terms of how they meet expectations and rise to challenges heightens the salience of goals and objectives. That is making our expectations more about what the work shows rather than how it shows it. This makes our expectations more accessible and helps our students determine what their work must show regardless of how they choose to go about doing it. Another principle of UDL intersects with this goal. The ideal outcome would be varying the demands and resources to create a zone of proximal challenge, where student creative expression meets the expectations in order to optimize challenge. Optimizing challenge should be applied

in combination with an increase in mastery-oriented feedback (CAST, 2011). Shaping feedback to make future attempts at designing with knowledge more successful provides the delicate balance between challenge and achievability. Design provides an avenue for expression and constructing meaning in line with the principles of UDL.

Design inquiry as an agent of transformative education provides an avenue for higher-order thinking, academic engagement, and a method to channel students' creative energies into their learning process. This breaks the artificial separation of life outside of school, and that which occurs within the bricks and mortar, in very much the same way that smartphones and mobile devices have brought social media and Internet resources into schools. There now exists an immediacy and interactive accessibility to information that was not there before. In order for education to be on the right side of history, teachers need to make use of these assets rather than suppress them (Gee, 2009; Kress, 2000). This invites the use of multiple modes in both learning and teaching.

Different societies have different modal preferences (Kress, 2009); for example, Ancient Rome valued oratory over writing and Ancient Egypt valued pictorial script over numerical exposition. This entails that effective design (of lessons and resources) must take into account societal modal preference. Another significant contribution is that different modes have different potential for eliciting meaning making transformative experiences. It is my assertion that a teacher's job is to cultivate these tools. Kress's examinations of mobility and portability explain how learning and effective teaching permeate the walls of schools and often take place in social contexts outside of school as students carry information with them on their mobile devices. Good teaching and effective learning can occur anywhere that knowledge and resources are accessible. This

supports the propagation of online resources and mobile access to information through online collaborative software such as Brock's very own ISAAK software. Regarding pace, I found myself thinking how often we do something the most expedient way to its detriment. The most time-efficient way to teach a unit is to lecture and give a test at the end; it is not however the best way in terms of retention and outcome for society (Cope & Kalantzis, 2000). Design is a potential step in making learning accessible and more importantly effective for all students because of their modal preferences.

Multimodality

Multimodalities as a field is based on the fact that the spoken word is only one method of meaning as is writing (Kress, 2009b; Kress & Selander, 2012). The first form of language that we developed was oral language; it makes sense that it was and arguably still is the dominant form of communication. It is the form we have used the longest, followed much later by writing. Writing would be the second most common facilitator of learning based solely on how often it is used. There is more to teaching and learning than just what is said and written in the classroom (Bezemer & Kress, 2008; Kress, 2009). Teaching in only words and lectures deliberately shuts out all other methods of communication. Effective teaching is a two-way process; teachers help students learn, and students provide feedback in order to help teachers teach. Teaching, like a conversation, therefore is most productive when not entirely one-sided (Kress & Selander, 2012).

From the point of view of semiotics, most information of importance is conveyed in multiple modalities simultaneously in order to maximize transfer of knowledge. The example given by Kress (2010) is a sign indicating directions to accessing a particular

parking garage. The sign has a distinct shape, colour, and placement that complements its pictorial and written directions. Each mode in an effective sign communicates a new layer of meaning, each with a different purpose; writing suits names, image suits illustrating something, and colour frames and highlights important data (Kress, 2009b).

The way that questions are asked in schools determines the kind of response they will elicit. To answer the question "What is a nucleus?" students will likely answer with a textbook definition they may have memorized. There is no guarantee they fully comprehend the nature of the answer or its value to their learning. In response to the question "What does the nucleus of a plant cell look like, can you draw the nucleus for me?" students are invited to draw their thought and express their conceptual understanding in another mode: image representation. Therefore, image representation requires an epistemological commitment (Kress, 2009).

Within the typical classroom there are a variety of learner types each of whom have unique needs. These needs can be thought of as affinities for certain modes of expression. Some learners will learn a set concept better in certain ways, though not always in the same way for an individual across differing topics. Multimodal design is a large component of UDL and therefore there is much in common in the underlying principles of their educational applications. One example of this is the emphasis on providing options for expressing language, mathematical, and symbolic information. These can be presented in one way, but could be more effective if presented in multiple ways. Providing potentially confusing content in a variety of ways makes for more accessible presentations of that content (Kress & Selander, 2012).

There is movement towards expressing knowledge in modalities other than composed written language, including graphic organizers, diagrams, Wikis, and other Internet resources such as YouTube. The new accessibility of information can be clearly illustrated in the differences between the writing-dominated science textbooks of the early 1970s and the current generation of textbooks that feature graphic organizers and other non-written expressions of conceptual knowledge (Kress, 2009). This observation by Kress illustrates how the semiotics of society have profoundly impacted the design modes and methods used in schools and in creating their resources. Furthermore, these resources no longer are purely language, more often than not they feature online content relevant to the topics at hand, including online activities, tools for collaborative learning, and play-based learning environments.

Clarifying vocabulary and symbols that will be explored in a lesson can be the simple matter of displaying them in a variety of ways, like having equations written out, derived from their origin, and explained pictographically. Additionally, providing resources for decoding text, notation, and symbols can be utilized to make the learnings within a lesson more accessible. This can be as simple as displaying information with text, speaking to the main points, and having an illustration or other type of multimedia. Some learners can be assisted by physical modes like physical movement or manipulatives. Prominently featuring these principles also present in UDL can help to vary the methods for navigation and response. This provides an avenue for students to grasp concepts in their preferred mode of learning.

Since students learn in different ways in different situations, it would make sense to teach in a variety of ways (Gardner, 1999). By exploring new modalities of teaching,

such as including pictures, diagrams, and multimedia, teachers are able to offer their students divergent experiences of the learning (Danko, 2006; Franks et al., 2013; Gardner, 1999; Kress, 2009b). Furthermore, in addition to connecting students to the material by teaching how they learn best, contemporary literature supports having students express their learning in a variety of modalities, including traditional modes like essays, tests, and debates, but also emerging modes like wikis, blogs, and multimedia (Anderson et al., 2001; Cannon & Feinstein, 2005; Crowe et al., 2008; Gee, 2009; Kress, 2009a). Building an affinity for expression and design will serve to navigate life's challenges far better than an eidetic knowledge of disjointed concepts from text (Anderson et al., 2001; Bloom et al., 1956; Kress, 2000; Kress & Selander, 2012).

Another learning aspect from design thinking is that each modality of learning has affordances and constraints of expression. This is to say that each modality should be aligned with what it is meant to accomplish. The use of Bloom's taxonomy is instrumental in aligning the objectives in courses, units, and individual lessons (Bloom et al., 1956; Cannon & Feinstein, 2005). This alignment of objectives provides a valuable source of structure to lessons. This backbone can be fortified with opportunities to create and design with knowledge to provide an experiential, transformative framework for higher-order thinking, personal expression, and participative democratic empowerment (Bezemer & Kress, 2010; Edyburn, 2010). This new vector for driving a lesson will provide an authentic method of learning as students can illustrate their cognition in new ways that capture their interest and imagination (Folkmann, 2010). Students will learn better because they have methods of expression they wish to explore, they will have the incentive and support to utilize their past experiences to enrich their classroom learning,

and motivation to engage in the developing culture-narrative of their class (Anderson et al., 2001; Kress, 2009b; Sanford & Madill, 2007).

Twenty-First Century Learning

Twenty-first century learning is a profound shift in focus from the methods of the traditional classroom. Students make use of content to develop skills. In this way, content becomes a vessel for teaching skills with a predetermined outcome. The information age has necessitated that successful students become masters of sifting through information; therefore, a high-degree of organization, investigative skills, and critical thinking have become a catalyst for success in a competitive work environment. These skills enable students to analyze new swaths of information, solve problems, function deliberatively, form educated opinions, and collaborate with symmetric and asymmetric views.

As posited by Cazden et al. (1996; known also as the New London Group) and supported by many others since, the drive for a more age-relevant learner has brought about a change in educational thought (Cope & Kalantzis, 2000; Kress, 2009b; Saavedra & Opfer, 2012). This change has been the movement from a model centred on direct instruction to one that explores the learning of the day through a variety of perspectives. Cazden et al. note that these perspectives can be characterized as one of the following instructional practices: situated practice, overt instruction, critical framing, and transforming practice.

Situated practice is an immersion in the narratives and exploration of the existing information, blended with the unique life-experiences of students. Students experience the material from a variety of perspectives and make meaning from the encounters, developing their abilities to access, interpret, and analyze information. For example,

students might learn about DNA replication from a video, a diagram, as well as create and share a presentation on the topic. In this way, students have not only repeatedly encountered the information needed to meet an expectation, but have also developed their ability to make meaning from multimedia, diagrammatic representations and communicate their learning effectively. The content of the expectations becomes a vessel for teaching the needed skills (Zhang & Burry-Stock, 2003).

Overt instruction is a systematic, structured, and conscious scaffolding of the information at hand for the purpose of building knowledge (Cazden et al., 1996). Such instruction delivered with the support of a variety of modes is more likely to be accessible to students. Assignments that can be completed in a variety of ways will make students' learning more accessible and authentic to their instructors. From the learners' perspective, an array of assignment types will also expose students to new forms of expression. The practices aligned with 21st-century learning have tremendous implications for the outcomes of instruction, student experience, as well as the desired outcomes of our educational system.

Critical framing interprets the socio-cultural contexts of knowledge and invites students to stand back and critically examine the learning at hand. Such thinking is useful in determining bias and self-directed growth. With the rise of mass-media and the continued inundation of consumerist rhetoric, it is more important than ever to practice and develop the skill of critical thought (Kress & Selander, 2012). That development happens in classrooms by having students collaborate, debate, and reason with material in a safe environment with their peers. In such a way, students can become critical consumers of knowledge, who are mindful of inherent biases and capable of processing

the incredible amounts of information readily available. Critically framing information in the classroom prepares students to think for themselves and often.

Once students have experienced other instructional practices of 21st-century learning, they are ready to reflect and apply their learning to other areas of study, thus transforming practice. As previously mentioned, students who are capable of applying knowledge from a wide range of disciplines have the skills to thrive in a wide range of pursuits. These skills can be developed by utilizing a range of modes in teaching practice. Making use of independent, collaborative, multimedia, online, kinesthetic, and narrative instructional techniques will expose students to a range of forms of expression. On the assessment side of instruction, providing options for accepted forms of expression will allow students to develop their ability to communicate in a variety of forums. These modes of learning frequently correspond to new literacies and 21st-century skills.

Another goal of 21st-century learning is having students take more operational control over their learning as characterized by the qualities of initiative and entrepreneurialism (Gee, 2009). Students who take a more active role in their education have greater resilience and experience higher achievement than those who are led from task to task. Emphasis on self-regulation is exactly what students will need in order to be self-starters in society. Critical thinking and problem solving are similarly valued as they enable students to interface with information and meet challenges on a level playing field. As such, the qualities of mental agility and adaptability are also developed to enable students to better process information and apply their learning from other disciplines to the task at hand. Students process information differently based on their unique cognitive processes that can be crudely categorized into types of intelligence (Denig, 2004).

Multiple Intelligence

Multiple intelligence is the theory that intelligence can be generally classified into discrete types that are distinct from one another (Gardner, 1985). The overall intelligence of students are mixtures/mosaics of the different forms rather than an amorphous general ability. As such student learning patterns and preferences are unique to each student. However, commonalities emerge in the form of a growing list of intelligence types (Gardner, 1999).

Though the number has grown since the publication of the theory of multiple intelligences, the foundation of the theory of multiple intelligences remains the same; students have affinities for certain patterns of learning. Each student appreciates and divergently experiences the process of different types of learning (Gardner, 1985). These affinities for different learning patterns manifest as asymmetric achievement on tests favouring different intelligences. These make for a range of instructional tactics that can uniquely benefit the range of learner types. As each student is a unique mosaic of these intelligences and ideas, so too must inclusive practice encompass such diversity.

Twenty-first century learning is not just about the skills necessary to cope with the exponential growth in access to information. Students who thrive in the information age are capable of curiosity and creativity. Students develop these skills when their imagination is unleashed in class, rather than shackled to the textbook. Curiosity drives a person to seek out answers and imagination drives a person to go further and dig deeper. Both skills are critical for engagement, especially in learning. It is for this reason that students who are engaged with a given topic are those who have an affinity for creativity.

Creativity and curiosity cannot be tested for, evaluated, or reduced to a percent, but it can certainly be witnessed and cultivated in the classroom.

The interconnectivity of Bloom's taxonomy, metacognition, design, multimodal expression, and 21st-century learning is evident in contemporary educational literature (Anderson et al., 2001; Bezemer & Kress, 2010; Cannon & Feinstein, 2005; Crowe et al., 2008; Gacenga et al., 2012; Gee, 2009; Krathwohl, 2002; Kress, 2009a; Kress & Selander, 2012). As shown in Kress (2009), the examination of effective design shows clear evidence of expression in multiple modalities. It is my assertion that effective teaching will do so as well; weaving Bloom's taxonomy, metacognition, design theory, and multimodalities together to provide an effective framework for universal learning for all students.

Universal Design for Learning

The pursuit of an existing framework to start from has led me to the concept of Universal Design for Learning (UDL). The term "Universal Design" is borrowed from the field of architecture (Katz, 2012). Architect Ronald Mace of the University of North Carolina is considered the founder of the Universal Design movement (Rose & Dalton, 2009). Beginning in the 1980s, buildings began to be designed to feature wheelchair ramps. This movement was centred on making buildings and tasks physically accessible. For example, adding curb cuts and ramps would make entry into buildings much easier for those in wheelchair devices. It would also make it easier for new mothers with strollers and for persons with limited leg mobility, and even those who are fully able-bodied would find it easier to gain entry to an accessible building. This led to the maxim of "Necessary for some, but good for all." Though originally designed with persons with

visible disabilities, these small modifications made it easier for others. This movement towards accessibility was necessary for some, but good for all (Danko, 2006; Edyburn, 2010; Katz, 2012). Expectant mothers and persons who have trouble with stairs found their day-to-day lives made unintentionally easier because of accommodations that were not meant for them. What was necessary for some became a benefit to all.

UDL is a theoretical framework drawing on learning sciences, critical pedagogy, and multimodalities designed the make learning accessible to all students. As it has become clear, learning in the 21st-century must be dramatically different from the methods utilized in the past (Cope & Kalantzis, 2000; Gee, 2009). From the learning sciences, UDL draws inspiration from the theory of multiple intelligences (Gardner, 1985), Bloom's taxonomy (Anderson et al., 2001; Bloom et al., 1956), 21st-century learning (Drake, 2007), and accommodating learning styles (Denig, 2004; Yeganeh & Kolb, 2009).

Inclusive philosophies like this can apply Universal Design principles to education. One of the first extensions of UDL was the creation of guidelines by the Center for Applied Special Technology (CAST), a not-for-profit with the goal of making education a more inclusive and accessible process. The dominant example of this perspective is the *Universal Design for Learning Guidelines* (CAST, 2011).

UDL is ultimately about design thinking and learning science applied to the process of teaching and learning (Edyburn, 2010). The focus is on providing opportunities for all types of learners by having the teacher be a conduit for the learning instead of its sole source (Gardner, 1999). This model balances the teacher's responsibility for teaching with the students' prerogative to learn with the result being a

dynamic balance of a participative democratic class collaboration and an equally liberated environment of self-learning and reflection (Edyburn, 2010; Katz, 2012).

UDL relies on providing multiple means of representation, expression and engagement in order to create a positive space for all types of learners. Students are given voice in deciding how they can acquire and construct their knowledge. This empowers them by deciding how they will learn according to personal preference and increases their engagement with the material. Students are given choices in how they will express their knowledge and demonstrate their learning. This enables them to communicate in a manner in which they can succeed and express their opinions, conceptual knowledge and skills in a variety of forums. Students are given choices in how they engage with the material; shaping the way that they participate in class and molding their identity in the class. This provides opportunities for personal growth and discourse in small groups, the classroom and beyond.

CAST UDL Guideline Organization

The principles of UDL necessitated a structured approach to ensure that the outcomes could be reached methodically. This compelled the development of a stable framework for implementing UDL-aligned teaching. The U*niversal Design for Learning Guidelines—Version 2.0* is an updated and revised vision of these goals (CAST, 2011). The guidelines proposes three clusters (Representation, Action/Expression, and Engagement) each composed of three strategies for improvement. Each strategy is then further explored with proposed actions for implementing them in teaching practice (CAST, 2011). The overarching vision of this resource is to provide strategies for

implementation of accessible practices (Rose, 2001). Therefore, each strategy is tailored to represent a best practice of contemporary teaching.

Providing Multiple Means of Representation

The first of these clusters of strategies seek to provide multiple means of representation for resources and course materials. The proposed action of this strategy is to make lesson content and teaching resources used more accessible by providing options for perception, textual information, and methods of comprehension (CAST, 2011).

Student perception of the resources and content can be supported by providing ways of customizing the display of information. For example, students may benefit from being able to adjust their view of a given class resource—options like moving forward in the class to take notes or adjusting the font of a slideshow to be more easily readable. This perception support can also take the form of alternatives to auditory and visual information such as ensuring that presented multimedia has subtitles (Chita-Tegmark, Gravel, Serpa, Domings, & Rose, 2012). This alteration once implemented in teaching practice results in students being able to comprehend more of the information presented to them.

Options can also be provided for textual information like language, mathematical expressions, and symbols. Vocabulary and symbols can be clarified to ensure that students can understand the basic concepts and begin the process of learning. Providing a word bank or a list of terms will ensure that students who are unaware receive a solid grounding in the material and those who are familiar receive a quick refresher before moving on. The syntax and structure of the expository sentences can be made unambiguous in order to ensure that facts and concepts are easily captured and

understood. The very process of decoding, be it interpreting text analysis, mathematical expressions, or symbolic meaning can be made smoother by having students work in pairs to make meaning. These understandings can be presented across languages and illustrated through multiple modalities to ensure that students access the content one way or another (Glass, Meyer, & Rose, 2013).

Perception options can also be provided for comprehension tasks. One such way is to build on previous knowledge by having students recall past learning and supplying background information (Rose & Dalton, 2009). Doing so values past learning and allows for a variety of perspectives to be heard in the collaborative classroom. Drawing attention to patterns, critical features, and relationships makes comprehension of the big picture easier and allows students to establish their own mental structures of the concepts. In an effort to cultivate data analysis skills in students, class activities can guide information processing (Crowe et al., 2008). This provides opportunities for visualizing and working with data to develop critical investigative skills. Lastly, providing opportunities to utilize skills acquired in other classes to students' benefit will establish a climate of valuing knowledge as subject-specific knowledge becomes transferable skills.

Therefore, multiple means of representation in class content and learning can be provided through options for perception, textual information, and comprehension. Implementing these multiple means of representation in teaching practice will cultivate resourceful, knowledgeable learners how are able to access data in a variety of ways, interpret written language effectively, and comprehend the deep meaning of information (CAST, 2011).

Providing Multiple Means of Action and Expression

The second of these clusters of strategies seeks to provide multiple means of action and expression rather than defining participation and meeting the expectations in one specific way. The proposed action of this strategy is to make class participation and task completion more accessible by providing options for physical participation, expression, communication, and executive functions (CAST, 2011).

Providing options for physical action can be supported by getting students out of their seats and varying the methods for response and navigation. Furthermore, providing access to assistive technologies serves to enable students to learn by overcoming exceptionalities (Rose, 2001). For example, having class participation require less physical movement and providing access to a speech-to-text software would enable students with specific needs to engage with the learning and lesson materials.

In addition to the options for physical action, student learning can also be supported by providing options for student expression and communication. One such strategy is to use multiple modes in communication (Kress, 2009b). Having a concept lesson contain written language, graphic organizers, pictorial text, and manipulatives ensures that students can receive the information. Furthermore, when students are assigned tasks, allowing them to make use of the same range of media types in their expression of the knowledge as when they are participating in lessons allows them to communicate their learning effectively. This principle also applies when students are tasked with composing and constructing with their learning. Giving students this flexibility values their past learning in such a way that their unique developed skills can be applied in tandem with their current learning (Rappolt-Schlichtmann & Daley, 2013).

Students can do tremendous work if allowed to express themselves as they know how. Rather than simply allowing students to only express themselves how they already know, student fluency with a variety of modes of expression can be gradually developed by exploring previously unknown means (Kress & Selander, 2012). Introducing new modes like Prezi or Glogster and having students freely learn their use for tasks in a collaborative environment allows for co-construction of skills between students. Students will require support in the early stages of learning how to use a new mode of expression and as they develop proficiency, students can be allowed to stand on their own (Glass et al., 2013).

A final avenue of supporting multiple means of action and expression is to provide options for executive functions. Student learning and judgment can be supported by having opportunities to develop realistic goals. These opportunities are crucial in developing their goal-setting as students can wrestle with their objectives and the methods for attaining them. Similarly, affording students opportunities to plan and strategize their daily class routines and discussing successes and fiascos shows students some methods for managing their time and energies. While initially students may be loath to organize their learning, doing so collaboratively at first will encourage students to develop their own mental construction of what works for them (Bryce & Whitebread, 2012; Veenman et al., 2006). Lessons can also support student skill development by facilitating student management of their information and resources. For example, students can be tasked with developing an organization system for managing their intake of information, sorting their acquired resources, and monitoring their progress through a

unit. Once established, these skills form the basis for executive function and provide a mental framework on how to approach tasks.

Therefore, fostering multiple means of action and expression in class tasks and learning objectives can be provided through options for physical action, expression, communication, and executive function. Implementing these strategies will nurture a climate of strategic, goal-directed learning and scholarship which features responsive, expressive, and deliberate learners (CAST, 2011).

Providing Multiple Means of Engagement

The third and final of these clusters of strategies seeks to provide multiple means of demonstrating engagement. The proposed action of this strategy is to make lessons and activities more accessible by providing options for recruiting interest, sustaining effort, and developing self-regulation (CAST, 2011).

Recruiting interest is a difficult prospect when students are not inherently invested in the material. Thus, optimizing individual choice and providing opportunities for autonomic selection of topics within the content provides an effective avenue for garnering interest in the topics of learning. For example, if learning about Roman culture and a presentation is an assigned task students may be encouraged to select a relevant topic to their interest. Also, having students select topics relevant to their lives can make their tasks more relevant, valued, and authentic in that it connects their learning outside the classroom with the learning inside the classroom (Kress & Selander, 2012). If a student has knowledge of tools and the topic is about ancient tools, it would be valuable to offer a real-world context in order to validate the data as having relevance to contemporary life.

Another means for promoting engagement with the material is to provide a means of sustaining effort and developing resiliency in learning. Students require goals that are worth striving for; hence, goals must be salient in their implications and outcomes. Motivating goals are both reachable and significant. Providing an opportunity to be average will pale in terms of rousing engagement compared to an opportunity to be exceptional and to succeed in an ambitious goal. Varying demands and resources in a way to produce a surmountable quantum of challenge produces learning that requires engagement and cultivates development (CAST, 2011); as demonstrated by Vygotsky, students learn optimally when there is a fine balance between support and challenge (Vygotsky & Kozulin, 2011). This challenge can be surmounted with the support of peers and a strong sense of community in the classroom. Fostering collaboration and a culture of unity will encourage students to take intelligent intellectual risks in the classroom, thereby engaging with the material (Jankowska & Atlay, 2008). A final method for imbuing students with resilience is to tune feedback to be mastery-oriented. Effective feedback according to this principle highlights opportunities for mastery as well as consideration for areas necessitating development. The evaluative process of student achievement should be focused on providing prospects for further development.

A key outcome of schooling is to nurture self-regulation as a means of creating motivating expectations, personal coping strategies, and reflective thinking in students. Promoting expectations and beliefs that optimize motivation should be a significant consideration in designing lessons and tasks that develop critical consumers of knowledge. This skill is a critical support of 21st-century learning and its inclusion demonstrates an alignment with a changing world (Cope & Kalantzis, 2000; Drake,

2007). Similarly, facilitating personal coping skills is an important strategy in having students develop self-regulation. Giving students a voice in how they complete assignments, participate, and make choices in tasks will afford opportunities for self-mastery. Another included strategy for developing self-regulation is implementing self-assessment as a component of the learning process. Reflection is the first step to metacognition, a growing hot-topic in educational literature and its inclusion once again illustrates a connection between UDL and emerging educational thought. After contemplation of achievement on a task, students with practice and support will grow intellectually from their mistakes.

Therefore, promoting multiple means of engagement with class tasks and learning objectives can be provided through options for maintaining interest, sustaining effort and providing tools for the development of self-regulation. Implementing these strategies will encourage invested, meaning-making students who are tenacious in practice and methodical in their decision making (CAST, 2011).

Implications of Inclusive Frameworks for Education

Not all inclusion comes from UDL; other frameworks are often referenced as the backbones of inclusive teacher practice. UDL is a rapidly proliferating framework for inclusion because of the flexibility in which it can be integrated into practice (Glass et al., 2013). A selection of the strategies will work with any assignment, task, lesson, or evaluation a teacher can do. This means that the framework as a whole can be applied in a variety of ways to align with the needs of students where one's teaching style can be made more accessible. For example, a teacher concerned about his or her students' available types of expression can find inspiration and potential avenues to explore in

order to improve the options for their assignments. The strategies do not demand changes in practice, they offer avenues for improving what is already there by illustrating methods of increasing student access to learning (Rose & Dalton, 2009).

Another strength is the dense interconnectivity between UDL and scholarly literature in the field of education. Reading the literature and gleaning new tools for implementation in practice is quite the extensive chore. Balancing the potential benefits is the consumption of time from selecting from numerous scholarly publications, self-help books, and tales of best practice. UDL draws from numerous sources like social semiotics (Bezemer & Kress, 2008; Kress & Selander, 2012), learning theory (Denig, 2004; Vygotsky & Kozulin, 2011; Yeganeh & Kolb, 2009), Bloom's taxonomy (Anderson et al., 2001; Bloom et al., 1956), and design (Folkmann, 2010; Rowsell & Burke, 2009). Taking the conceptual constructs from these seminal works and framing them in a neatly parcelled theoretical framework has resulted in a unique guide for improving professional practice.

This resource is not without shortcomings. The framework as a whole is intensely theoretical. This heightens the lack of concrete tactics. While the guidelines give numerous ideas for how to go about improving one's lesson it offers no explicit tactics or explanation about how to practice any of the clusters, ideas, or strategies. One modification that would prove immensely useful would be the inclusion of examples of activities and accommodations like those offered in the exploration of the organization and implementation of the UDL guidelines. Examples such as these would go a long way to clarifying what the often lofty guidelines preach as well as how to meet the needs of students. As a one-page resource, there is obviously a limit to the amount of content

capable of being displayed on the media, but as the current main thrust of the UDL movement this resource could benefit from some elaboration of the same quality. Utilizing this single page as a conduit linked with webpages and further reading relevant to each strategy including examples of how they can be implemented would be of tremendous value. In particular, it could be a one-stop reference for refining practice and transforming teaching.

The CAST UDL Guidelines provide a theoretically grounded framework for transforming teaching practice and providing accessible learning opportunities for all students. The strategies are in response to identified barriers to student learning and are in the form of alternative options that accommodate student learning diversity and support the cognitive development process in domains such as perception, action, expression, and engagement. Implementing the recommendations of the CAST guidelines in conventional teaching practice will ensure that classrooms cultivate resourceful, expressive students with the determination and access to learn the skills necessary in the 21st-century (Clark & Button, 2011; Gee, 2009; Kress, 2000).

Attitudes Towards Inclusivity

As illustrated there are numerous frameworks for being inclusive. Even the definition of inclusivity is a matter of some debate (Ainscow, Booth, & Dyson, 2006). The term inclusive is used broadly in educational settings and means different things in differing circumstances. Inclusivity can mean having all types of students in one classroom. It could mean students with a range of abilities being included in the same classroom, or all students are invited to learn (Purkey & Novak, 1996). Inclusivity could mean all learner types are considered in the design of instruction, and the views of all

students are accommodated in the current learning (Florian et al., 2010). While the definitions differ, the unifying goal does not. Inclusive education is idealized as the establishment of a safe space. One such view is that inclusive education is an ideal goal, inclusive pedagogies are strategies for getting there, and inclusive practice is the application of inclusive pedagogies in order to provide a safe, non-excluding learning atmosphere for as many students as possible (Florian & Black-Hawkins, 2011).

As crucial as inclusion is to the betterment of education, it is still a topic of contention among many teachers (Ainscow & Miles, 2008; de Boer, Pijl, & Minnaert, 2011; Forlin, Douglas, & Hattie, 1996; Sharma, Forlin, & Loreman, 2008). The type of contention reported varies from source to source. Forlin et al. (1996) report that some more senior teachers are reluctant to accept students with differing needs. This takes the form of lack of interest in full classroom integration for students with exceptionalities. Forlin et al. argue that inclusion of differing levels of ability begins with teacher acceptance of those with exceptionalities in their own classrooms.

Much more recently, Ainscow and Miles (2008) reported that the trend had endured and that some educators simply do not practice inclusively, despite having attended workshops and professional development. These teachers do not practice what they preach. They do not believe in being student-centred or inclusivity (Ainscow & Miles, 2008). Similarly, Sharma et al. (2008) reported that some do not embrace inclusivity because of concerns about finding the time to implement ideas they already have. These experienced teachers are aware that inclusive practice is good for their students, but do not believe that they should implement the frameworks of the professional development they attend (Sharma et al., 2008).

A central part of teachers developing their inclusive practice is recognizing that they already know much of what they need; once this is done, inclusive practitioners create positive, safe, learning spaces (Florian et al., 2010). de Boer et al. (2011) in a similar vein state that support and experience will increase the potential inclusivity of a given teacher candidate. New teachers are keen to be inclusive but are missing tools and supports in this goal. Many emerging teachers do not feel confident in their ability to be inclusive, despite being highly enthusiastic about the prospect, and feel that they were not adequately prepared in their teacher education (de Boer et al., 2011). Similarly, Forlin and Chambers (2011), in a study of 228 respondents, reported that 93% of participants felt ill-prepared for inclusive practice based on their teacher education program. They ascribed responsibility to a lack of opportunities for practical application and a lack of resources once in their practice.

Other proposed barriers to developing inclusive practitioners are a lack of support from the administration of schools where they teach (Brackenreed, 2011), opposition from within the teaching profession itself (Ainscow & Miles, 2008; Florian et al., 2010; Sharma et al., 2008), as well as a tempering response of many established teachers for reproducing the status quo (Lambe & Bones, 2006). Though there are many proposed potential mechanisms for the uptake of inclusive practice, none precisely identifies the exact nature of the barriers to developing inclusive practice among new teachers.

Summary

Therefore, the literature of the field of education has established that inclusive practices lead to a positive and safe learning space. It has also established that a variety of pedagogies, such as those inspired by Bloom's taxonomy, metacognition, design

thinking, multimodal learning, and 21st-century learning are capable of contributing to an inclusive class environment. Other larger, overarching frameworks for inclusive practice, like UDL, Tribes, and others are also designed to create an inclusive space where all types of learners can thrive. Inclusion is accepted by a majority of teachers as being a central pillar of effective teaching practice. There is opposition to the proliferation of inclusive pedagogies as the norm among some teachers. While the strategies for inclusive practice exist, and are taught in teacher education programs, the question remains: Are they filtering into the teaching practice of new teachers?

CHAPTER THREE: RESEARCH METHODS

This explanatory mixed method study (Mertens, 2014) involves an investigation into perceptions of new teachers regarding inclusivity (e.g., ensuring that learning is accessible in multiple modes of expression, providing student-centred learning, and making student past learning feel valued) as well as some of the pedagogies that are posited to help establish a class-culture conducive to inclusivity. It will identify what students have been taught through an audit of course materials and compare the results with their perceptions elucidated through a questionnaire and interview. It specifically looks to explore contemporary thinking of new and soon to be new teachers regarding inclusive pedagogies as well as their needs to further develop their inclusive practice. In order to cement the context of this study this chapter begins by giving the reader an insight into some of the established inclusive pedagogies and their relation to inclusive practice. This study is conducted from an insider perspective as the researcher has recently graduated from a teacher education program and therefore potentially shares a similar perspective with the participants. Reflexivity of these experiences is incorporated into this chapter to provide rationale and perspective.

This chapter also provides a comprehensive overview of the study's research methodology. A summary of the research design, research participant criteria, data collection methods, and data processing and analysis techniques featured in this study is provided. Lastly, the limitations of the study as well as efforts made to establish research fidelity are presented along with the ethical considerations of this study.

Reflexivity

While I have found numerous frameworks for being an inclusive practitioner,

none, to me at least, have been as good of a theoretical basis for diagnosing and countering various obstacles to my goal of creating a safe, equitable learning space for my students as UDL, which prominently features connections between Bloom's taxonomy, metacognition, design thinking, multimodal design, and 21st-century learning (Glass et al., 2013). This connectivity is the result of applying the advancements in the learning sciences in one neat framework for the purpose of providing a tool for teachers, including myself, to align their teaching practice with the pedagogies of inclusive education including UDL.

My first instinct in the classroom when leading a lesson is to ensure that the lesson appeals to all three domains of Bloom's taxonomy: head, heart, and hands. It is a priority to have a component that strikes at wonder, one that elicits an emotional response, and one that gets students up and moving. Another priority is to have activities that necessitate students to make choices and experience consequences where they can learn and reflect in a safe environment. Further, their assignments can be crafted in such a way as to provide freedom of expression. This leads to an acceptance of multiple modes of assignment completion as well as utilizing multiple modes in the mechanisms of lessons. With the previously mentioned number of students accessing special education services, the time is now to determine how prepared our next cohort of teachers are to meet the rising tide of needed differentiation.

Study Context: New Teacher Perceptions of Inclusive Pedagogies

Teacher candidates are students in a teacher education program who have not yet met the requirements for being certified by the Ontario College of Teachers. They along with recently graduated teacher candidates form what I will refer to as "new teachers."

These budding education practitioners are the next generation of teachers. They were taught by the last generation of teachers and will teach the next generation of students. They were taught with the methods of the past and will have to teach with the methods of the future. Identifying what students have been taught through an audit of the courses taken will set the context for the questions.

Approximately 17% of students in Ontario access special education resources (People for Education, 2013). This statistic does not differentiate between those identified and those who are not, but are given access by their teachers. This is indicative of educators recognizing that students can benefit from utilizing resources that are not strictly a necessity for them (Glass et al., 2013). Students can benefit from accommodations that are designed for others, but are good for all. This movement towards inclusion can be seen in a variety of inclusive pedagogies such as Bloom's taxonomy (Anderson et al., 2001), studies in metacognition (Afflerbach, 2006), design thinking (Denning, 2013), multimodal design (Kress & Selander, 2012), and 21st-century learning (Cope & Kalantzis, 2000). In fact, UDL can be seen to draw upon these previously mentioned inclusive frameworks (Rose, 2001).

From my recent experience as a teacher candidate, it would be a lesson in understatement to say that accommodating the needs of the students in my classroom is a challenge. It is not unheard of to have a class with more than half of the students requiring an accommodation. This can be in addition to the content of their Individual Education Plans (Denig, 2004). Teachers face a wide range of challenges to student success in the classroom (Rose & Dalton, 2009). Namely, they must find a vehicle for reaching every student with a mixture of content knowledge and opportunities for self-

development of skills compatible with the incredibly wide range of societal expectations (Rappolt-Schlichtmann et al., 2013). This leads to the question of whether they have been given every possible resource in their mission to educate the next generations of students.

In particular, these new teachers are expected to be trained to accommodate the learning styles of all their students in order to provide the best possible educational setting for student success. Our perceptions of knowledge attainment have changed (Kress & Selander, 2012) and our expectations of new teachers have shifted accordingly. The course materials that are prescribed are of interest as what is selected to be the course content like textbooks and online resources is clearly a priority for student learning. This can also be interpreted to be a source of pedagogical knowledge for the new teachers in this study.

In response to these societal demands, new teachers have to be more tactical in how they will organize lessons in their as of yet unattained classroom in order to accommodate their students' learning practices. UDL is a teaching philosophy based on cognitive neuroscience, design methodologies, and applied in tandem with best practices in education including Bloom's taxonomy for creating flexible learning environments to accommodate the wide range of potential learning styles of student by removing obstacles to learning (Meo, 2008). As a form of inclusive practice, UDL provides a framework for reference for an aspiring practitioner. The purpose of this study is to identify their perceptions of their knowledge of inclusive practices, whether they are aligned with inclusive practice, and to identify their specific needs for further development.

Research Methodology and Design

A mixed-method research methodology was utilized during this study to explore new teacher perceptions of UDL. It specifically sought to describe the alignment of new

teacher pedagogical views with those of inclusive practice. I propose that a mixed-method research methodology (Johnson & Onwuegbuzie, 2004) has the ability to provide the data required to explore these perceptions from both quantitative and qualitative lenses. Qualitative research looks to ascribe meaning to a social or human site of inquiry. Qualitative research therefore values opportunities to develop and analyze social structures and the perspectives of participants (Braun & Clarke, 2006; Peshkin, 2001). To balance this, I also made use of quantitative research methods as an approach for examining the discrete variables and their relationships (Creswell & Clark, 2007). As a first step, an audit of the relevant course materials was performed. The topics and themes elucidated served as the baseline for comparison with the results of the analysis in the study. This analysis focused on consolidating and crystalizing the perceptions of emerging teachers through a set of data instruments: a questionnaire and a semi-structured bank of interview questions. The data gathered include the results of the course material audit in the intermediate-senior teacher education, the quantitative and qualitative data from the questionnaire, and the data gathered from the interviews.

As a researcher and a teacher it is my personal belief that the opportunities of schooling should be accessible to all types of leaners. I argue that teachers can reach every student and contribute to their thriving in academics by utilizing inclusive pedagogies that are focused on making the experience of the classroom more realistic and relatable to their personal narratives as well as providing multiple ways to access the information. I have seen the efficacy of making the classroom learning relevant to student identity. I can clearly recall the first time that I handed out an assignment that truly resonated with my students. This assignment called for students to summarize a unit that

the class had just finished in any mode they saw fit. I outlined my expectations of them collecting, analyzing, and connecting the conceptual learning with the skills gained in the lab and told them to get started. I had pulled together many of the best practices that I had been taught in teacher education: Bloom's taxonomy, metacognition, design thinking, multimodal design, and 21st-century learning. The resulting lesson and task was probably my best. I had unintentionally threaded together successful, inclusive practices to make a well-rounded, well-balanced, and liberating lesson for my classroom—I had done exactly what UDL and other inclusive frameworks aim to do.

The central phenomenon at the heart of this study is the issue of new teacher perceptions and their preparedness to meet the diverse needs of students in Ontario. Given the incredible range of potential avenues for approaching this problem, the focus will be on inclusive pedagogies, particularly UDL. This study could have looked at many other potential indicators of preparedness for this challenge. The study was designed to look at perception and preparedness of new teachers in order to determine the views of the next generation of teachers and whether they have the skills that are required to successfully implement inclusive pedagogies in their practice. New teachers will gradually succeed outgoing educators, so their perceptions serve as a harbinger of where education in the province might be is heading. Therefore, capturing a snapshot of the ideologies entering the educative workforce would be of great value to the field at large in establishing what contemporary practice could be. The main questions addressed in this study of new teacher perceptions of inclusive pedagogies are:

1. How do new teacher perceptions of inclusive pedagogies align with their capacity to teach them?

2. In what ways do new teacher philosophies demonstrate alignment or lack thereof with inclusive pedagogies?
3. What do new teachers need in teacher education to develop their inclusive practice?

Therefore, utilizing a qualitative component to the research can be considered a necessity as it is an effective method for elucidating, deciphering, and organizing the opinions of the participants (Guba & Lincoln, 1994). First, an audit of course materials was performed to determine what knowledge has been made available in the courses of teacher education. This was compared to the perceptions and expressed views of participants. Perceptions and views may vary and therefore both a qualitative component for depth and a quantitative component for breadth were utilized. In order to explore the perceptions the largely quantitative survey identified areas of interest and the semi-structured qualitative interview sought deeper answers to the research questions.

Pilot Studies

A pilot study was undertaken through Research Ethics Board file number 06-048. This initial exploratory study was executed to determine and perfect the readiness of the data-gathering instruments and the interview protocol. By field-testing the survey questionnaire in person, many questions were clarified and became much more accessible to participants. A similar level of clarification in the interview protocol was illustrated. This pilot study fulfilled the purpose of refining the instruments as well as catching numerous errors in the protocol that proved invaluable in the process of obtaining research ethics clearance.

Selection of Site and Participants

This study adopted a cluster sampling technique (Kemper, Stringfield, & Teddlie, 2003) to enroll participants and was limited to the experiences of new intermediate/senior teachers in order to explore the perceptions of the next generation of teachers. It specifically explored the perceptions of new teachers who had just graduated or were about to graduate from an Ontario faculty of education in order to gain a more precise focus on the emerging philosophies of teacher practice in the province. It was also limited to teacher candidates and new teachers from one university in southern Ontario.

The participants were either current teacher candidates or very recently graduated candidates who had not begun professional practice. Many of these potential participants will soon be new to teacher education and their initial philosophies of pedagogy will be informative in terms of discerning who the next generation of teacher will be.

Access to the participants was gained through teacher education instructors who forwarded an email invitation to the teacher candidates under their care. These instructors functioned as gatekeepers (Seidman, 2012). They facilitated a connection between one particularly large pool of participants and myself. The letters of invitation were forwarded to these faculty members, who distributed them to their candidate charges. Participants who agreed were invited to complete the online, mixed-method questionnaire. Those who complete the questionnaire and indicate interest in an interview were considered. Interview participants were selected utilizing a critical case sampling technique (Berg & Lune, 2004). Contact was established and a meeting place and time agreed upon. While the questionnaire is designed to survey the perceptions of a larger number

of participants, the interview is designed to ask deeper questions in order to explore motivations, deep perceptions and worldviews.

Description of Participants

Participants are teacher candidates now in the teacher education program or are graduates of the program who have not yet commenced professional practice. The mean age of participants was 23.48 years, while the most common was 24 years of age. There was a range of teachable subjects (see Table 1) represented in the 40 new teachers (33% male; 67% female) who participated in the questionnaire. The participants were predominantly in the concurrent education program (85%), while the remaining participants were pursuing their teacher education in a consecutive program (15%).

Participants who completed the questionnaire were eligible for follow-up, in-person interviews in order to ask specific questions and obtain open-ended answers to the research questions. Six participants were selected on a critical-case basis for their unique points of view in order to obtain detailed answers from a variety of perspectives.

Data Collection and Recording Techniques

Data were gathered through three means: (a) an audit of course materials completed by the researcher, (b) a mixed-methods questionnaire completed by all participants, and (c) individual interviews with a selection of questionnaire participants who indicated interest in the interview process at the end of their questionnaire.

The audit of course materials detailed the content delivered in four teacher education courses that are relevant to inclusive practice: Special education, classroom dynamics, instructional strategy, and classroom assessment. These courses are present in both the consecutive and concurrent routes of teacher education at the southern Ontario university where the study was conducted.

Table 1

Total Frequency of Teachable Subjects and Participants

Teachable subject	Frequency
English/ Language Arts	15
Mathematics	10
Dramatic Arts	5
Visual Arts	6
Music	0
French	10
Geography	7
History	14
Biology	6
Physics	2
Chemistry	6
General Science	2
Social Studies	2
Technological Education	0
Physical Education	2

Table 2

Interview Participant Demographics

Participant	Gender	Age	Teachable subjects	Teacher education
David	Male	28	History, Geography, Mathematics	Consecutive
Lyanna	Female	24	Physics, Mathematics	Concurrent
Don	Male	24	Dramatic Arts, History	Concurrent
Hussein	Male	25	History, Geography	Concurrent
Marigold	Female	24	Dramatic Arts, English	Concurrent
Olga	Female	24	Biology, Chemistry	Consecutive

The results of this audit would form the baseline for comparison that the other results would be measured against. Questionnaires are data gathering instruments that ask questions in order to gain insight into their topic of inquiry (Blair, Czaja, & Blair, 2013). The questions asked in the questionnaire (Appendix A) focused on gathering demographic information, quantifying the knowledge base of new teachers, and revealing topics for additional questions. Additionally, if the participants made themselves available, an interview (Appendix B) was offered on a critical case basis of sampling. This sampling technique works by selecting eligible participants based on their previous responses (Patton, 2005). This method provides an opportunity to survey the entire range of responses with fewer interviews. Participants were selected in order to fully explore the range of perceptions revealed during the questionnaire.

Audit of Course Materials

In order to have a complete picture of what new teachers are being taught, an audit of the materials that they were taught with will be performed (See Appendix C). This audit provided a baseline for the researcher to compare with the later findings. The recurrent themes were compared to the learning, attitudes, and expressed views in the questionnaire and interview. This audit took the form of a literature review of the course materials including syllabi, lesson content, and the assignments in the courses. It connected the topics and assignment of each course to relevant inclusive pedagogies.

Questionnaire Data

The questionnaire was designed to survey and quantify the perceptions of participants with Likert-like scales and open-ended questions. The Likert-like scales enabled the selections to be easily quantified and statistical analyses performed. These

queries established the demographic and perception data for use later in the study. The open-ended questions served as starting points for exploratory questions during the potential interview. Since both quantitative and qualitative methods were utilized in the same survey instrument, the questionnaire is a mixed-method tool (Mertens, 2014). The questionnaire featured researcher-developed questions, therefore validation and revision through pilot testing was necessary. Pilot testing was useful in finding and fixing problems including invalid, unclear and leading questions. The resulting questionnaire was much more straightforward with regard to participant comprehension, clarity of participant response, and analytic precision. The pilot study and revision process was completed and data gathering began promptly after.

Participant completion of the questionnaire took place entirely online through the medium of an electronic survey and took approximately 20 minutes. Most questions were answered by selecting the statement that best describes their inclination. These were Likert scales and Likert-like scale responses like Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree. Some open-ended questions punctuated the sections of the quantitative-driven investigation, which solicited opinions and descriptions of feelings. As well at the end of a given section, an opportunity for optional comments or questions was provided. At the very end of the questionnaire, there was a prompt which asked participants if they would be interested in making themselves eligible for an interview. From those who affirmatively indicated, participants were selected by critical case selection (Patton, 2005) and invited to attend an interview.

The process of collection and data recording of the questionnaire was automated as the survey software “Qualtrics” compiles the data captured into an exportable file. The

results were then made available for import into SPSS, where the data analysis and graphical depiction took place. Importing the data required that the variables be labeled as being ordinal, nominal, or scale. This determined how the variables were available to be analyzed. This inputting process also served to provide an early opportunity for detection of trends.

Interview Data

Those selected for an interview were contacted and a mutually convenient time and location was arranged. The interviews followed a semi-structured format that further explored the perceptions first illustrated during the completion of the questionnaire. The questions were selected from a bank of questions based on the responses to the questionnaire. The pool of potential interview questions were entirely open-ended, hence the questions solicited qualitative responses that expanded on the findings of the questionnaire. The reason for the inclusion of open-ended questions, as Creswell (2013) states, is because open-ended questions give participants the opportunity to voice their experiences without the limitations of the researcher or the findings of past research. The open-ended questions in the interview explored the perceptions, patterns, and pedagogical philosophies first identified in the questionnaire. The questions were designed to assess both the alignment of the participants' teaching practice to inclusive pedagogies and their perceptions of inclusive strategies in general. The open-ended nature of the inquiry allowed the participants to craft detailed, unique responses from their personal narratives, resulting in deeper, more reflective responses. These insights provided an opportunity for investigation into the underlying factors of inclusive teaching practice in new teachers.

These interviews were audio-recorded to ensure that the researcher could focus on asking questions and not the immediate transcription of responses. This enabled the researcher to move fluidly from one question to the next. The entire interview was transcribed verbatim in order to preserve the responses for thematic analysis. Once transcribed, qualitative data was clustered and coded. These codes provided the basis of themes that were explored and grounded in the established literature through the process of grounded analysis. As the focus of looking at new teacher perceptions of inclusive pedagogies is fairly novel, the questions were developed for this study. Therefore pilot testing was instrumental in revising and refining the questions asked in order to provide more effective opportunities for discourse and expression for participants and richer data for the researcher.

Data Processing and Analysis

As the data set gathered from the course material audit, questionnaire, and interview featured both qualitative and quantitative data, the forms of analysis varied from source to source. The data from the audit was coded into themes to be compared with the separately gathered themes from the questionnaire and interview. The responses to the questionnaire closed-ended questions were statistically analyzed to illustrate themes, patterns, and trends and inform the open-ended questions of the semi-structured interview. These data were analyzed to provide answers to the aforementioned research questions. The responses to open-ended questions on both the questionnaire and interview were transcribed, coded, and analyzed to elucidate themes. These themes were compared with the indications of the statistics in order to describe trends, patterns, and provide insights into how participant perceptions of inclusive pedagogies are aligned with

those of the literature. All the findings were compared to the baseline found in the course audit. As a final step, the results of this study were utilized in a needs assessment procedure to produce recommendations that applied the findings of the audit, questionnaire, and interview to construct an exposition of the needs of new teachers.

Quantitative

The quantitative data gathered were utilized to quantify the perceptions of new teachers as well as rank their preferred resources and supports. Lastly, descriptive statistics provide general insight into the comfort level, perception, and willingness to implement inclusive pedagogies of new teachers. The process of data analysis required the importing of the quantitative data into SPSS v21.0 prior to the commencement of data analysis. The results of analysis informed the directions of thematic analysis (Braun & Clarke, 2006).

Qualitative

The qualitative data gathering process began shortly after the completion of the first questionnaires. The few open-ended responses of the questionnaire were compiled and compared for early indications of themes. These themes were coded according to a grounded analysis research paradigm (Bryant & Charmaz, 2007; Creswell, 2012) and informed the structure of the entirely qualitative interviews. This along with the preliminary quantitative results formed the first part of an explanatory mixed-methodological approach (Johnson & Onwuegbuzie, 2004).

Following the completion of the interviews, the audio-recording of each interview was prepared for analysis by verbatim transcription to text files. The process of data transcription provided an additional opportunity to gain a deeper understanding of the

participants' experience, as the transcripts have to be checked several times to guarantee a high-quality transcript. These typed transcripts files were forwarded to the interview participants for the purposes of member-checking (Cho & Trent, 2006; Creswell & Miller, 2000). This confirmed that the verbatim transcripts are composed of the expressed views of the participant and allow for clarification.

The typed files were then coded by hand several times in order to further expand on the themes informed by the questionnaire and develop new themes from the interviews. Creswell (2013) refers to the process of coding as the procedure utilized to segment and label textual information to isolate descriptions and cluster together similar ideas into themes. This clustering and labeling process is a necessary step in making meaning of captured data (Basit, 2003; Fereday & Muir-Cochrane, 2008). The relatively focused data pool from the interviews allowed the interviews to be transcribed by hand. The approach to be utilized in coding was grounded analysis (Joy, 2007). By assigning codes to recurring ideas in the data and scrutinizing the overlapping ideas, major themes recurring in the data could be sought out with ease (Braun & Clarke, 2006). A sample of recurring codes included skepticism, inclusivity, safe space, strategy, and needs. The participant responses based on which research question they pertained to were be sorted into 254 codes. These codes were first clustered into groups (96 larger codes) and consolidated into approximately 20 subthemes. These themes were sorted into three major themes that answered the research questions, considered the results of the course audit, and aligned with the results of the questionnaire. Emergent patterns from this analysis became the impetus for consolidation of the codes into larger themes central to the research questions.

Methodological Assumptions

My teaching experience in a variety of settings has illustrated the value of inclusive pedagogies in my lessons. Therefore, I have a stake in seeing if others share my vision. Throughout the data gathering, coding, and analysis process, it was necessary to ensure that the identified themes were derived from the questionnaire and interviews rather than my preconceived notions. Furthermore, during the process itself, a side-process of back-checking was implemented to compare the "verbatim" transcript with the audio-recording in order to properly present the tone, nature, and emphases of the participant. Constructing themes, while retaining the true nature of the responses provided by a participant, required the close following of a grounded analysis procedure (Charmaz, 2006). Another consideration is that I knew some of the participants from professional settings. I had taken courses with several participants and some participants had taken teacher education courses with former instructors of mine. Therefore, they would have been exposed to many of the same philosophical stimuli as I.

Establishing Credibility

The process of data validation ensured the accuracy and precision of these collected data and was woven throughout the data recording, collection, and analysis phases of research (Guba & Lincoln, 1994; Schwandt, Lincoln, & Guba, 2007). Since this study featured an audit of course materials, questionnaire, and interview as components of the investigation, these results were compared and utilized in triangulation.

Questionnaire

The questionnaire instrument was validated through a sustained cycle of pilot testing, revision, and re-testing over a period of 5 months. This process of refocusing the

questions resulted in questions that were precise in their investigation and reliable in their result, which made them valid instruments of investigation (Blair et al., 2013). The process of pilot testing also resulted in questions that were precise in their language resulting in accessible inquiries to both participants and the researcher. The questionnaire also featured open-ended questions, which by their elaborative nature were qualitative. By evaluating the results of the questionnaire, more focused examination occurred in the interview, taking full advantage of the semi-structured layout of the interview to pinpoint topics for further investigation.

Interview

While the questionnaire was mixed in its methods, the interview was entirely qualitative. Validity in qualitative research is based on there being thematic consensus between the researcher, the participants, and the data captured; this is indicative of an effective and valid analysis (Cho & Trent, 2006). Validation in this study was facilitated by respondent validation in the open-ended questions, member checking these answers, and triangulation of data (Guba & Lincoln, 1994). Respondent validation of the content was performed by emailing a summary of the open-ended questionnaire responses to the participant in order to ensure that the researcher drew conclusions from the responses that the participant had intended. This process of member-checking the verbatim transcripts ensured that the content to be coded was faithful to the intended nature of participant responses to the interview questions. Creswell (2013) asserts that respondent validation should include soliciting participant consensus with regard to emerging thematic data and constitutes a rigorous component data validation.

Triangulation is the process of comparing evidence from multiple sources for consistency of evidence (Schwandt et al., 2007), as was achieved in this study from the literature, course material audit, the responses to the questionnaire (both open and closed-ended questions), and the responses to the open-ended questions of the interview. Collecting and capturing data through these various methods increased validity as the final themes emerge from all of the sources. All of these protocols were woven into the process of data capture, collection, and analysis in order to ensure a high level of research validity in this study.

Ethical Considerations

This study required the researcher to engage in fieldwork which involved human participants. As such there were numerous ethical implications to be considered throughout the carrying out of this study. The ethical considerations necessitated the approval of the Social Science Research Ethics Board of Brock University. Ethics clearance was obtained 2 months prior to the commencement of data collection (Brock Social Science Research Ethics Board file #13-251).

During the process of this study, every possible effort was made to make certain that data was gathered, captured, and recorded ethically with discretion and sensitivity to the individuals being studied always being maintained. It was made clear to the participants at the onset of their participation that they are participating in a research study and that their perceptions were the topics of investigation. The potential outcomes of the study including the publication of a graduate thesis as well as the pursuit of a publication in a research journal were made clear. Therefore, participants were made aware, prior to their commencement of participation, of all the potential ways that their

involvement could be presented. As such, there was no deception or misleading of participants as every step of research was explained thoroughly by verbal and/or written modes of communication.

Participant confidentiality was maintained at all steps in the process. Every effort was made to maintain the confidentiality of participants through the creation of self-selected pseudonyms that were used to identify them by only the researcher and the advisement committee. This reduced the risk of exposure and harm coming to the participants by precluding the use of their actual names. All hard copies were secured utilizing physical locks and electronic data were secured by a password.

Conclusion

This chapter provided a comprehensive overview of the study's research methodology. It described in detail the methods utilized to determine the needs of new teachers to successfully implement inclusive pedagogies and their perceptions of them. These questions were approached through the implementation of an explanatory mixed-methods research paradigm which included an audit of course materials, a questionnaire, and an interview. Each of the themes, patterns, and quantifications are described in the next chapter.

CHAPTER FOUR: FINDINGS

This explanatory mixed method study (Johnson & Onwuegbuzie, 2004) involves an investigation into perceptions of new teachers regarding inclusive pedagogies, the alignment of their practice with those pedagogies, and identifies their specific needs to further develop their skills to create a safe, equitable learning space. It identifies what students have been taught through an audit of course materials and compares the results with the themes gleaned from a combined analysis of both quantitative and qualitative data from a questionnaire as well as from a qualitative interview of seven participants selected on a critical-case basis. A mixed method study afforded the opportunity to use both qualitative and quantitative data sequentially to better answer the research questions. This study was conducted from an insider perspective (Grundy, Pollon, & McGinn, 2003) as the researcher has recently graduated from a teacher education program and therefore potentially shares a similar perspective with the participants. The analysis of descriptive quantitative data was conducted utilizing SPSS V21.0, while the analysis of qualitative data was conducted utilizing inductive coding of the questionnaires to reveal themes carried through to code the interviews. This resulted in aligned themes that could be compared to the baseline established in the course audit. Following the results of the course audit the themes were explored and broken down into three groups: perceptions of inclusivity and teacher education, teacher actions, and the needs of new teachers.

Results of the Course Audit

An audit of the resources of the four courses directly relevant to inclusivity in the classroom prescribed in the teacher education program revealed an excellent coverage of many instructional strategies, educational frameworks, and inclusive pedagogies

including metacognition (Veenman et al., 2006), Bloom's revised taxonomy (Anderson et al., 2001), design thinking (Stolterman, 2008), multimodality (Kress, 2009b), and 21st-century learning (Cope & Kalantzis, 2000). On paper, the courses cover all the frameworks that the questionnaire and interview would explore, hence their views on the efficacy of teacher education in helping them feel prepared would be compared to the stated goals of those courses.

The audit covered the materials focused on syllabi from EDUC 4P19−Classroom Assessment, EDUC 8F11−Instructional Strategies, EDUC 8P19−Classroom Dynamics, EDUC 8Y06−Special Education, as well as the analogous courses for each of these courses for the Consecutive and Technological Intermediate/Senior Teacher Education programs. By sifting through the syllabi of the courses and their analogous variants, this investigation was able to establish a baseline for inclusive practice strategies imparted in these Teacher Education programs. The following tables are summaries of the course audit for the learning objectives for each course. They will function as the basis for comparisons and thematic analysis as they present the formal objectives of what teacher candidates should know, do, and be at program's end.

Classroom Assessment

The analogous Classroom Assessment courses of the various Intermediate/Senior Teacher Education programs covered broadly similar material such as an emphasis on multimodal approaches to tasks and activities in order to provide authentic assessment opportunities for students (Table 3). There were also several topics relating to metacognition such as backwards design to ensure that the evaluated expectations are in fact well represented in learning opportunities during the unit lessons.

Table 3

Course Audit Summary of Class Assessment Courses

Concurrent–EDUC 4P19	Consecutive–EDUC 8P04	Tech–EDUC 8P05

Course expectations relate to building skills in:

Multimodality:
- authentic assessments
- multiple acceptable forms of expression

Bloom's taxonomy:
- balanced instruction
- applying expectations to student learning
- lessons should appeal to all learning domains

Metacognition:
- strategic thinking
- planning ahead
- backwards design
- executive function

21st-century learning:
- flexibility to appeal to multiple intelligences
- adaptive instruction to cater to all learners
- new literacies
- differentiation

Design thinking:
- shaping your practice to fit the class in front of you
- adapting assessment to be educative for students
- flexibility within frameworks of curricula and instruction
- higher-order cognition
- experiencing the process of meaning-making

Students in the teacher education program also covered topics promoting reflective thinking within students, such as exploring the value of self-evaluation in the classroom as well as providing assignments where their students might find opportunities to make decisions thus increasing their engagement with the material.

Also discussed in broad terms were the ideas of designing practice to be balanced among the different learning domains though a consistent emphasis on Bloom's taxonomy. The submitted work of students was expected to contain direct references and use of the terminology from Bloom's taxonomy, thus maintaining a stable framework of language established in the publication of the taxonomy. Students in the class were also exposed to various models of 21st-century learning such as collaborative learning, holistic assessment, new literacies, and an emphasis on technology-assisted instruction prefaced on the use of multimedia and social media.

Instructional Strategies

Similarly to the previous course (Classroom Assessment), Instructional Strategies modelled progressive teacher education practice in the topics discussed (Table 4). A major theme was authentic assessment, such that students were able to express their learning in a variety of forms leading to a more accessible pedagogy practiced by the teachers taking the course. This course dedicated entire lessons to authentic assessment, collaboration, and the benefits to student learning, backwards design, and balancing instruction to be across all learning domains. This course also emphasized the connection between higher-order thinking and student engagement with the learning of the day. Students who are thinking beyond memorization and delve into applying their knowledge are more engaged with the material they are learning.

Table 4

Course Audit Summary of Instructional Strategies Courses

Concurrent–EDUC 8F11	Consecutive–EDUC 8D10	Tech–EDUC 8D11

Course expectations relate to building skills in:

Design thinking:
- shaping your practice to fit your class
- adapting assessment for students
- providing opportunities for expression
- challenge driven by choice
- flexibility within frameworks of instruction
- conducive to engagement
- higher-order cognition
- experiencing the process of meaning-making

21st-century learning:
- critical thinking
- heavy investment in multimedia depictions
- gleaning information from narratives
- differentiation
- flexibility to appeal to multiple intelligences
- adaptive instruction to a variety of learners
- access to information in a variety of forms
- students are mosaics of intelligences
- collaborative work
- alternative modalities of expression
- new literacies

Metacognition:
- strategic thinking
- planning ahead
- backwards design
- executive function

Bloom's taxonomy:
- balanced instruction
- lessons should appeal to all learning domains

Multimodality:
- authentic assessments
- multiple acceptable forms of expression
- graphical depictions of information
- richness of perspectives
- heavy investment in multimedia depictions
- exposure to outside the norm modalities of expression

This connects with multimodality, Bloom's taxonomy, and metacognition. This class is driven by student presentations of the topics in the syllabus, whereby upwards of 50% of the topics are covered by student presentations as a portion of the evaluated coursework. Students experience the topics they are learning demonstrated by the instructor of the course. Therefore, they have a prime opportunity to witness their impact.

Classroom Dynamics

This course looked at topics in classroom management as well as classroom assessment (Table 5). The classroom management section presented topics most strongly connected to motivating students to learn and developing engagement with the learning opportunities afforded to them. For example, one topic—authentic assessment—might work to value student past learning, in order to reduce the lure of misbehaving in class, as it is rare for an engaged student to be a source of distraction.

This course also looked at the classroom dynamics of assessment, and the role it plays in student learning. The idealized form of assessment posited in this class is that assessment should enhance learning rather than merely be a measurement of how of it has occurred. A task should not be solely crafted to best illustrate if students have learned, but rather it should provide an opportunity for students to hone their learning, and the teachers to hone their next plan. In particular, a permeating theme was the use of technology as an assessment tool in the context of how it can be used to make assessment more directly connected to student learning. Non-technological methods of assessment as a tool for learning were explored in class almost every week. Assessment was often explored from the perspective of how it enhances learning by providing opportunities for higher-order thinking, rather than how it evaluates it.

Table 5

Course Audit Summary of Classroom Dynamics Courses

Concurrent–EDUC 8P19	Consecutive–EDUC 8P06	Tech–EDUC 8P07
Course expectations relate to building skills in:		
Metacognition: – strategic thinking – planning ahead – backwards design – executive function	Bloom's taxonomy: – balanced instruction – applying expectations to student learning – lessons should appeal to all learning domains	
21st-century learning: – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to variety of information forms – understanding that students are mosaics of intelligences – collaborative work exposes students to other intelligences	Design thinking: – shaping your practice to fit your class – adapting assessment to be educative – providing opportunities for expression – challenge driven by choice – flexibility within frameworks of curricula and instruction – conducive to engagement – Higher-order cognition – Experiencing the process of meaning-making	

Special Education

The special education course looked at a variety of ways to be inclusive and accommodate students with exceptionalities (Table 6). It also addressed the interventions and instructional strategies that would help teachers to reach their students. Particular emphases were authentic assessments as well as alternative assessments. Teacher candidates were able to explore what accommodations were necessary for students with a variety of exceptionalities. Class topics would focus on different disorders and exceptionalities such as learning disabilities and physical exceptionalities such as low-vision or low-hearing. On the inclusivity focus, teacher candidates explored collaborative learning, differentiation, assistive technologies, metacognition, and other pedagogies such as multiple intelligences for their efficacy in reaching the range of learners potentially in the classroom. Most of these strategies are the result of preplanning and are generalizable and germane to creating an equitable, positive class culture that is accessible to all learners.

This connects with multimodality, 21st-century learning and metacognition. Multimodal teaching might entail providing access to the information from a text, by utilizing assistive technologies such as text-to-audio software or the use of a dictation software. Students are encouraged to implement these strategies into their practice, and have a limited opportunity to attempt their use in case studies from a textbook.

The rest of this chapter will establish the alignment of teacher candidates with the expectations of these courses using the findings of the questionnaire and interview to provide answers for the research questions of the study. The results are discussed in the following chapter in order to draw conclusions and discuss their practical implications.

Table 6

Course Audit Summary of Special Education Courses

Concurrent–EDUC 8Y06	Consecutive–EDUC 8Y06	Tech–EDUC 8Y08

Course expectations relate to building skills in:

Bloom's taxonomy:
- balanced instruction
- applying expectations to student learning
- appeal to all learning domains

Metacognition:
- strategic thinking
- planning ahead
- backwards design
- decision-making and executive function

Multimodality:
- authentic assessments
- multiple acceptable forms of expression
- graphical depictions of information
- investment in multimedia depictions
- exposure to outside the norm modalities of expression

Design thinking:
- shaping your practice to fit your class
- providing opportunities for expression
- flexibility within frameworks of curricula and instruction
- conducive to engagement and personal investment

21st-century learning:
- affinity for technology
- differentiation
- flexibility to appeal to multiple intelligences
- adaptive instruction to cater to a variety of learners
- access to information in a variety of forms
- students are mosaics of intelligences
- collaborative work exposes students to other intelligences

Results of the Data Instruments

The questionnaire and interview were designed to explore the perceptions of teachers and to compare the results to the expected knowledge outcomes of the courses examined in the course audit. This would entail the interview and questionnaire being guides to reflections of their journey through teacher education and how it contributes to their preparedness. The data analyzed were both qualitative and quantitative. The questionnaire would identify themes salient to the research questions, while the interview would explore those themes in greater depth and detail. The quantitative and qualitative data from the broader sample in the questionnaires were explored with a critical-case offering of interviews. The instrument data results follow this model of questionnaire exploration expanded upon by the responses in interviews to explore the three themes: perceptions of inclusivity and teacher education, teacher actions, and the needs of new teachers. Interview excerpts are notated with the interview they are from and the page from the transcript. There were six interviews, and each participant was interviewed once.

New Teacher Perceptions of Inclusivity and Teacher Education

This theme emerged from the interview questions that asked participants about their experience in refining their teaching into inclusive practice. Although participants expressed skepticism about whether teacher education helped them to develop their capacity for inclusivity, participants innately associate being an inclusive practitioner with being a good teacher and perceive themselves as possessing varying levels of readiness.

Connecting inclusivity with being a good teacher. Participants unanimously stated their belief that being an inclusive practitioner is key to being a good teacher. Responses such as Hussein's, "I am cognizant [that] students have a variety of abilities,

needs, and supports that are required to be met" (Int. 2, p. 7) were common and were often supported with a level of contempt for teachers who practice pseudo-inclusivity. In particular, one response to these questions stands out. "Getting students to do an oral report doesn't mean you're catering to auditory intelligence. It means that you taught them to type and then read. That isn't multiple intelligence, that's letting them talk for a while, instead of you" (Int. 5, p. 4). Don in his response illustrates his disdain for shallow inclusive actions and often superficial "buzzword" emphases that he believes are key to helping students learn: "I think it's valuable to "differentiate," another buzzword, your instruction" (Int. 5, p. 4). Don further articulated his view about educational buzzwords, in response to a follow-up question about if 21st-century learning are a part of his practice.

Don articulates his view that good teaching has always been forward-thinking, featuring critical thinking and learning to work with others: "You call it a buzzword. I think it's disingenuous, to put this umbrella of 'these are 21st-century skills,' as if critical thinking never existed before, or collaboration wasn't a thing and they weren't relevant before" (Int. 5, p. 4). He just doesn't think that the turn of the century has anything to do with the importance of the concepts and pedagogy practiced: "I think it's crucial that I implement critical thinking in my practice, but I don't think it's reasonable to call it anything to do with this century" (Int. 5, p. 4). Earlier in the interview he had explained his thinking that inclusivity should be at the heart of a teacher's focus by paraphrasing Dorothy Heathcote and her idea of "Meeting students where they're at" (Int. 5, p. 1). Don is alluding to the idea that inclusive classroom provides succour to students how they need it instead of a one-size-fits-all model. Don explained his skepticism with an experience from his past: "I'm always wary of statements like 'we need to prepare our

children for the future, it's the 21st-century.' I remember watching this video when I was in Grade 8, that they played on a VCR" (Int. 5, p. 4). He concluded his line of critique of buzzword influences on education by remarking that "There's a woman in 90s attire, explaining the future to me, as if she has any idea what she is talking about" (Int. 5, p. 4). This illustrates an awareness and disdain for superficial trends 21st-century learning.

Don therefore expressed what could be characterized as a cautious optimism about inclusivity in his practice. From his responses, it is evident that he believes they are fantastic, if trendy, practices that are in the best interests of learners. A similar perspective of optimism, with restraint, is offered by Olga—"It's not doing kinesthetic, visual, and auditory all the same time. It's having them sequentially not concurrently" (Int. 4, p. 5)—commenting on a perceived potential cognitive overload of students when teachers provide too many sources of information at once. This distinction demonstrates awareness of how too many instructional strategies at once are disconcerting for students and may in fact be distracting.

Similarly, David stated in his interview "I might not have all three every single day, but I'll incorporate it into my different plans so I rotate through them for engaging the students" (Int. 1, p. 9). Hussein also expressed a compatible view: "There are students that UDL is not needed for, these are students who will succeed likely regardless of what our teaching looks like" (Int. 2, p. 6). He clarified that there are different needs for students who succeed with traditional teaching styles: "So, for those students, it's less about trying to cram more into their brains and more about opening them up to the real world" (Int. 2, p. 6). He closed his response to the question with enthusiastic support for inclusive practice: "We're moving towards more inclusive society so more of them will

succeed anyway, why not spend those moments and help them understand in an inclusive environment. It's effective" (Int. 2, p. 6).

Though other participants expressed dissension with the notion of 21st-century learning being necessary, the sentiment of support was well stated by Marigold: "Students can just pull up these facts on their phone or online. Learning content and facts isn't important anymore for people to understand anymore" (Int. 6, p 9). There was general agreement that students bring a significant and important narrative with them into the classroom because of their unprecedented access to the world's wealth of information. Students have more access than ever before, and their narratives are vastly different from one another. This reflects a connection between inclusivity, accommodating the various types of learners, and what they bring into the classroom.

Therefore, as illustrated above, participants connect being an inclusive practitioner with being a good teacher. Similarly connected are notions of inclusive practice as being a staple of creating a safe learning environment. New teachers consider creating an equitable, universally accessible learning space a priority in their practice. There was however, a note of participant skepticism regarding the buzzword of 21st-century learning, and whether the skills were truly of this century, or simply transferable skills that have always been important.

Teacher education and development of inclusivity. Having consolidated the findings of individual survey questions for each of the explored inclusive pedagogies into a chart on each of knowledge levels, use of strategies relating to each pedagogy, and level of comfort with each strategy, comparisons were made.

As illustrated in Figure 1, there was an overall sense of good knowledge for each

of the inclusive pedagogies. Specifically, in each inclusive pedagogy, patterns emerged. Participants were asked about their level of knowledge for each of UDL, multimodality, design thinking, metacognition, Bloom's taxonomy, and 21st-century learning. Selections of good or very good were considered positive views, a selection of fair was considered a mixed view, and selections of either poor or very poor were considered negative views. This pattern characterizes all later groupings.

Participant perceptions of UDL, design thinking, and Bloom's taxonomy were mixed to negative. Regarding UDL, 21% of participants felt positively about their knowledge, while the remaining 79% held mixed or negative views of their knowledge. UDL is directly referenced in one class, Special Education EDUC 8Y06. That so many participants held mixed or negative views indicates deficiencies in how the content is made available for participants. Other frameworks of inclusion are not mentioned in any of the courses.

Design thinking resulted in a similar outcome; 32% held a positive view of their knowledge while 68% held mixed or negative views of their knowledge. The threads that constitute design thinking were covered in virtually all courses and given as examples in the survey questions. As one potential avenue for providing students an outlet for expression, it was surprising that so few held positive views of their knowledge.

Very few participants from the outset recognized the potential for inclusive practice, though many after seeing the examples in the questionnaire wondered why they never learned this. It is important to note that design thinking was only ever exhibited in teacher education as a tie-in with the highest orders of thinking of Bloom's taxonomy; at no point was the connection ever explicitly made by participants outside this investigation.

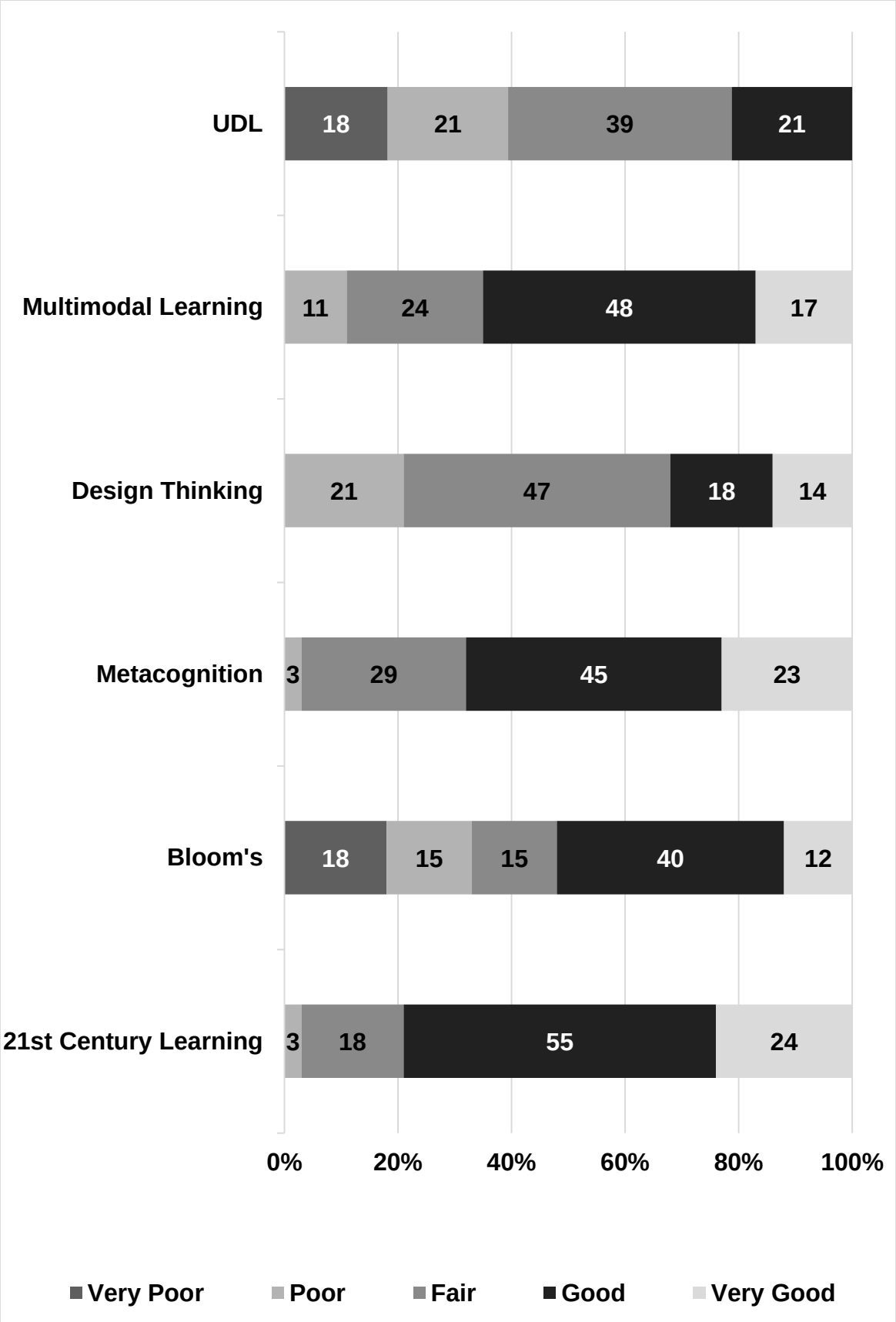

Figure 1. Participant assessments of their knowledge of inclusive pedagogies.

Similarly, participants held mixed perceptions about their knowledge of Bloom's taxonomy as 52% held positive views about their knowledge, while the remaining 48% held mixed or negative views. The mixed reception is surprising, given that Bloom's taxonomy is directly addressed in every course audited. This would indicate an opportunity to improve the methods of instruction in teacher education as current methods result in a very slight majority being confident with their knowledge.

In contrast, participant perceptions of their knowledge in multimodal learning, metacognition, and 21st-century learning were largely positive. Multimodal learning was explicitly covered in all the audited courses, though it was often described as something else. Some of the analogous terms included multiple forms of display, differential display of information, multiple modes, and use of multiple mediums. Participants held a positive view of their knowledge of multimodal learning 65% of the time, while the remaining 35% held a mixed or negative perception their knowledge. This reflects a consistent emphasis among the courses, illustrating how multiple modes of expressing information allows for more student to learn in their modal preference.

Similarly, participants held an aggregate positive perception of their knowledge of metacognitive strategies. Metacognitive strategies were repeatedly covered in all audited courses. Students held a positive perception of their knowledge of metacognition 68% of the time, while the remaining 32% held mixed or negative views. New teachers were therefore confident in their ability to provide opportunities for their students to be strategic and reflective, indicating a dividend on the investment in emphasis within the courses.

Similarly, 21st-century learning participant knowledge reflected the consistent emphasis in the courses audited. A strong majority, 79% of participants, reported holding

positive views of their knowledge. Participant confidence may have been due to every audited course making heavy investments in developing and exploring content relevant to 21st-century learning such as making use of media, computer-aided instruction, and collaboration, though several indicated that this was not a new-age skill. The association of some of the strategies to being included as modern skills was contested by some of the participants, as they felt that they had always been important, rather than being vogue topics of the days.

In the interview, participants expressed varying levels of negativity regarding their experience in teacher education. In particular new teachers reported a perceived superficial training and development in the discussed inclusive skills. Don, in response to a question of preparedness from teacher education, responded that he does not believe that conveying specific frameworks as the apex of inclusivity is a very effective way to win hearts and minds: "I don't think that bringing UDL in as this 'Hey teachers. Come to this in-service session to show you how to do UDL. And we're going to teach you more effective ways of being inclusive'" (Int. 5, p. 7). He explained his perception that "I think many teachers, especially some of my peers react negatively to these buzzwords being thrown around" (Int. 5, p. 7). He states that there is a level of frustration with the divergent and bewildering array of buzzwords being toted around as "best practices." Don further clarifies that "The words are empty of context, but speak very much to what teachers want to do. They just don't know how to do it in some cases. They do it without realizing it" (Int. 5, p. 7).

Similarly, David states his view of how teacher education prepared him to be inclusive: "It sounds exactly like how I would describe teacher's college. It's theoretical.

It is essentially putting into words the ideas that were there already" (Int. 1, p. 8). Specifically, David discusses his training from teacher education. It is important to note that he states his alignment with inclusive pedagogies, by stating that he had similar ideas, however this also means that he learned little from the process. Marigold, speaking to the same question, commented that "It is interesting for me to see other teachers who went through teacher education programs that are not inclusive in their teaching, and I wonder 'Well, you must have learned about inclusive teaching so why are you teaching like that'" (Int. 6, p. 4). This is representative of similar frustration with the peers of the new teachers and their lack of implementation of inclusive practices.

Another source of criticism were participant views of their peers' readiness for inclusive practice. A consistent negative perception across all the interviews was inherent. When asked a follow-up question as to why she felt that a few of her peers would struggle with inclusive practice, Marigold said "Maybe, it's because they're lazy, or they're just plain resistant to these ideas and clinging to what they know" (Int. 6, p. 4). Marigold further explained that she felt that "Teacher education does not make you care about being inclusive, it doesn't make you care about UDL, it's a lot of busywork, and you can get through teachers college doing a lot of teacher-centred things" (Int. 6, p. 7). She felt that her peers were encouraged to be inclusive, but did not necessarily integrate their learning into their practice, when they were not being assessed.

Marigold also commented that for some teacher candidates, "Teacher education is a kind of a game" (Int. 6, p. 7), and that "The only time in teacher education you actually have to try, is when your are being observed and that is when people who taught in a completely teacher centered way, for one day, teach a

student-centred lesson" (Int. 6, p. 7). Lyanna closed her interview with an adjacent sentiment: "I don't see this as a realistic occurrence in classrooms as they currently are" (Int. 3, p. 6). There was some resistance to the strategies as they were viewed as time-consuming in a teaching climate, with teachers who consider themselves tasked to capacity.

Self-evaluation of readiness. When asked about their comfort with a selection of pedagogies, participants responded with relatively mixed results. Participant comfort with UDL, design thinking, and Bloom's taxonomy revealed distinctly mixed results skewed towards negative levels of comfort.

As illustrated in Figure 2, 24% of participants reported feeling comfortable utilizing UDL in their practice, while 38% reported having mixed feelings of their comfort and another 38% reporting feeling uncomfortable. Similarly, when asked to assess their comfort with design thinking in their practice, participants reported a mixed result; 55% of participants reported mixed or negative views of their comfort (24% uncomfortable, 31% mixed comfort). Another pedagogy that resulted in a mixed perception was Bloom's taxonomy, because, 63% of participants reported mixed or negative levels of comfort (22% very uncomfortable, 13% uncomfortable, and 28% mixed comfort). This was surprising because as previously mentioned Bloom's taxonomy was a topic that was covered in many courses. Participants suggested that opportunities to design and follow-through with lessons explicitly using Bloom's would reduce anxiety and further develop their skills.

A majority, 72% of participants, reported feeling comfortable with multimodal learning, while 14% reported having mixed feelings of their comfort and another 14%

having negative views of their comfort with multimodal teaching strategies. Regarding comfort with metacognitive strategies in their teaching practice, 59% of participants reported being comfortable (45% comfortable, 14% very comfortable) with using metacognition in their practice, while 41% reported either neutral or uncomfortable (10% uncomfortable, 31% neutral). Finally, 57% of participants reported being comfortable with 21st-century learning strategies (46% comfortable, 11% uncomfortable), while the remaining 43% reported feeling either neutral or uncomfortable (9% uncomfortable, 34% neutral). The levels of comfort for with these concepts is as one would expect, given their emphasis.

Despite the range of criticism, all participants reported a fair state of perceived readiness, though most do not credit the readiness to the classes within their teacher education program. In terms of readiness the vast majority of interviewed participants stated a "fair" or better perception of their inclusive readiness. In particular, David stated that "I'm very confident in my abilities to be inclusive" (Int. 1, p. 7). Similarly, Olga stated "I'd be pretty confident" (Int. 4, p. 4).

Confidence as a result of teacher education. In her interview, Marigold responded that she felt "Pretty darn confident" (Int. 6, p. 4) in her readiness for inclusive practice. In response to a follow-up question asking why she felt prepared, Marigold responded "Firstly I'm aware of what inclusive pedagogies looks like in practice. That's really the first thing because a lot of teachers just aren't aware" (Int. 6, p. 4). Marigold was a teacher candidate from the concurrent path, which meant that she had repeatedly encountered many of the concepts highlighted in the questionnaire and interview, prior to teacher education.

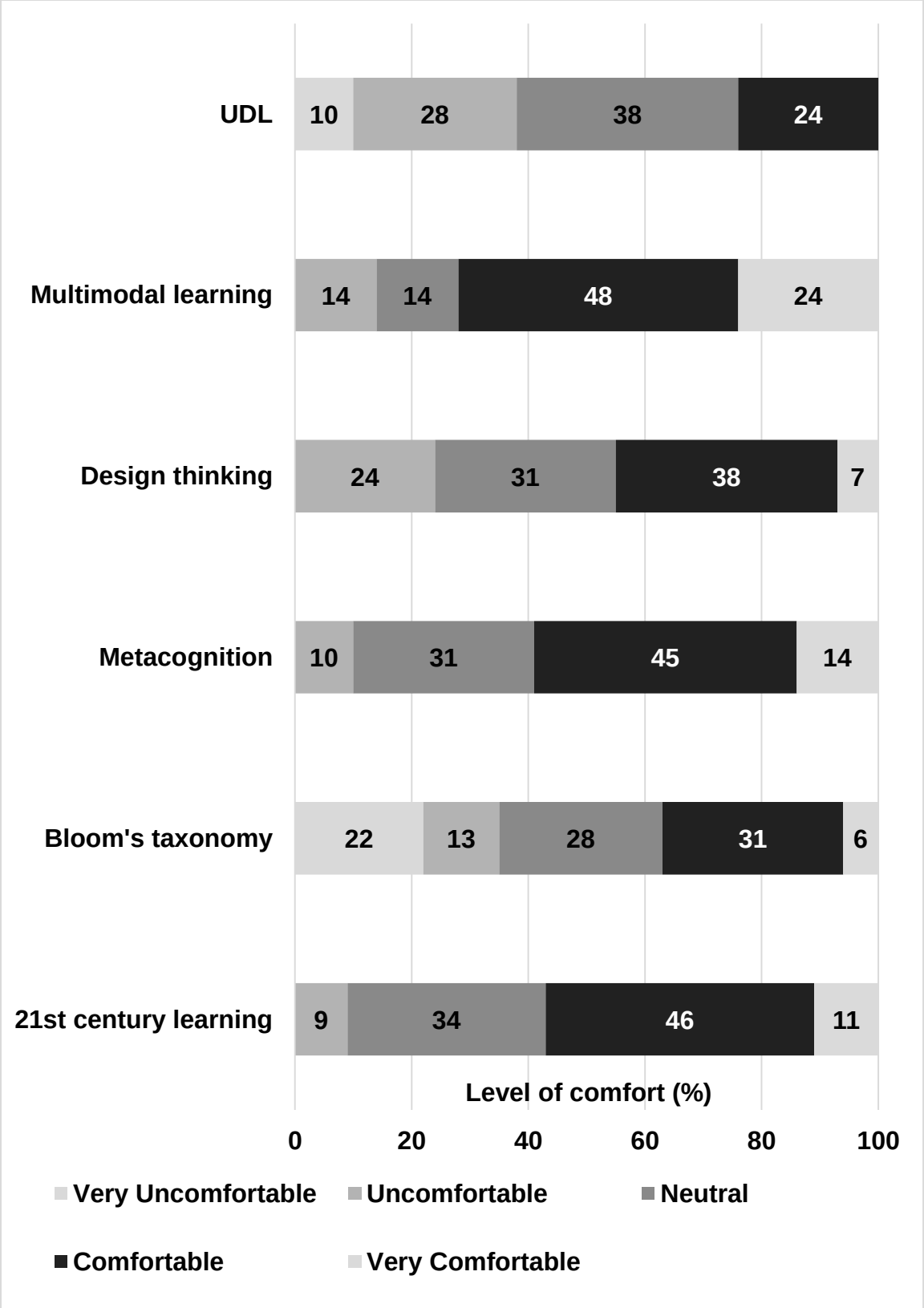

Figure 2. Participant assessments of comfort with select inclusive pedagogies.

In contrast, Lyanna expressed a degree of skepticism about her abilities: "Honestly, meh" (Int. 3, p. 6). She explained that she felt that "meh," a term indicating indifference, was "the best description of my current preparedness thanks to teacher's college" (Int. 3, p. 6). She immediately clarified that "I feel fairly confident, but I'm worried about managing my time, while still being inclusive in my teaching" (Int. 3, p. 6). This highlights a concern not with inclusivity itself but with inclusivity within the constraints of good classroom time management. Don expressed a similar sentiment in that "It is most certainly not my number one concern. Not by any stretch. I think that the inclusiveness in reaching your students comes with the other pieces; if you can just get through all the other hurdles" (Int. 5, p. 8).

Though all participants expressed a fair or better perception of their readiness, very few attributed any significant credit to teacher education for their readiness. Don's response to "To what degree do you credit teacher education for your readiness?" was "In my confidence? None" (Int. 5, p. 8). Don was not alone in a blunt assessment of the teacher education experience. In response to the same question, Olga equally succinctly commented "To be frank, not that much" (Int. 4, p. 5). Lyanna, who currently is completing teacher education, commented that she felt that she owed "minimal credit to teacher's college" (Int. 3, p. 6). She qualified this by stating that a more accurate statement was "I have learned more about being a good teacher, from 2 weeks of Residence Don training than I have from my previous four and a half-years in the faculty of education" (Int. 3, p. 6). Similar comments were found in all of those interviewed.

All participants however credit the practicum aspect of teacher education in isolation. David explained, "Teacher's college is a lot of ideas that I would've had, but they put in the theory [into] words" (Int. 1, p. 8). He further stated that "Sure, I don't

know exactly what UDL is, I haven't seen that particular package before, it doesn't mean that I don't have those ideas" (Int. 1, p. 8). David here addresses the fact that many of the ideas of teacher education are ideas that teacher candidates may in fact already have. He stated his belief that the most valuable part of teacher education was "My practicum, which is technically part of teacher's college" (Int. 1, p. 7).

Lyanna corroborates this perception as being one shared by some other teacher education program attendees: "The most we are going to learn, is on block one when we're in front of the class" (Int. 3, p. 6). Don explains why some may hold this view: "Genuine confidence only comes with applying those theories to a specific experience. Oh, I actually managed to do it. Great. Now I feel confident. As far as the exposure to the ideas, elements [of teacher education] were certainly helpful" (Int. 5, p. 8). Therefore, though criticism of teacher education is rampant, participants unanimously found the practicum of teacher education to be of great value to developing their inclusive practice. This demonstrates that the intended learning of the courses was not entirely effectively imparted to teacher candidates as illustrated by their criticism.

Teacher Actions

The participants who were interviewed had a wide range of strategies that they reported using in order to make their classrooms more inclusive. Their view of inclusion, similarly to the literature (Ainscow et al., 2006; Florian & Black-Hawkins, 2011), revolved around the creation of a safe learning space, where equitable, rich learning opportunities are available for students to develop knowledge and skills to thrive in contemporary society.

Inclusive Practice strategies and perspectives. When asked about whether they felt that they used a specific framework or pedagogy to be inclusive in their practice at

all, participants answered with an absolute yes or no response (Figure 3). Participants were fairly evenly split when it came time to report whether the participants used Bloom's taxonomy or design thinking in their teaching practice. A minority, 42% of participants, reported utilizing Bloom's taxonomy in their practice. Participants who answered in the affirmative were asked what sorts of activities they used.

Participants reported using Bloom's related strategies such as project-based learning, opportunities to create with knowledge, and scaffolding lessons that build on earlier learning to approach higher-order thinking. Some participants also drew distinctions between the lower orders and higher orders of thinking and their respective places in their teaching practice. Participants on the questionnaire reported that they look for conceptual knowledge before moving on to higher-order thinking, and they require the foundation to make the most of application, synthesis, and creation.

The next most closely divided result was design thinking, which 52% of participants reported utilizing in their practice. In a follow-up question on the survey, participants who answered in the affirmative reported using design-based strategies such as concept mapping and performance assessment tasks where students create with their knowledge. As students are afforded the opportunity to create as they see fit within the framework of the assignment, they become more engaged with the material as they felt they had a vested interest in the idea or construct they had created to demonstrate their learning. The majority of such participants cited a lack of ideas for how to use it but indicated their desire to implement what they knew in their practice. This is indicative of a lack of opportunities to practice these ideas and fully develop their knowledge prior to exiting teacher education.

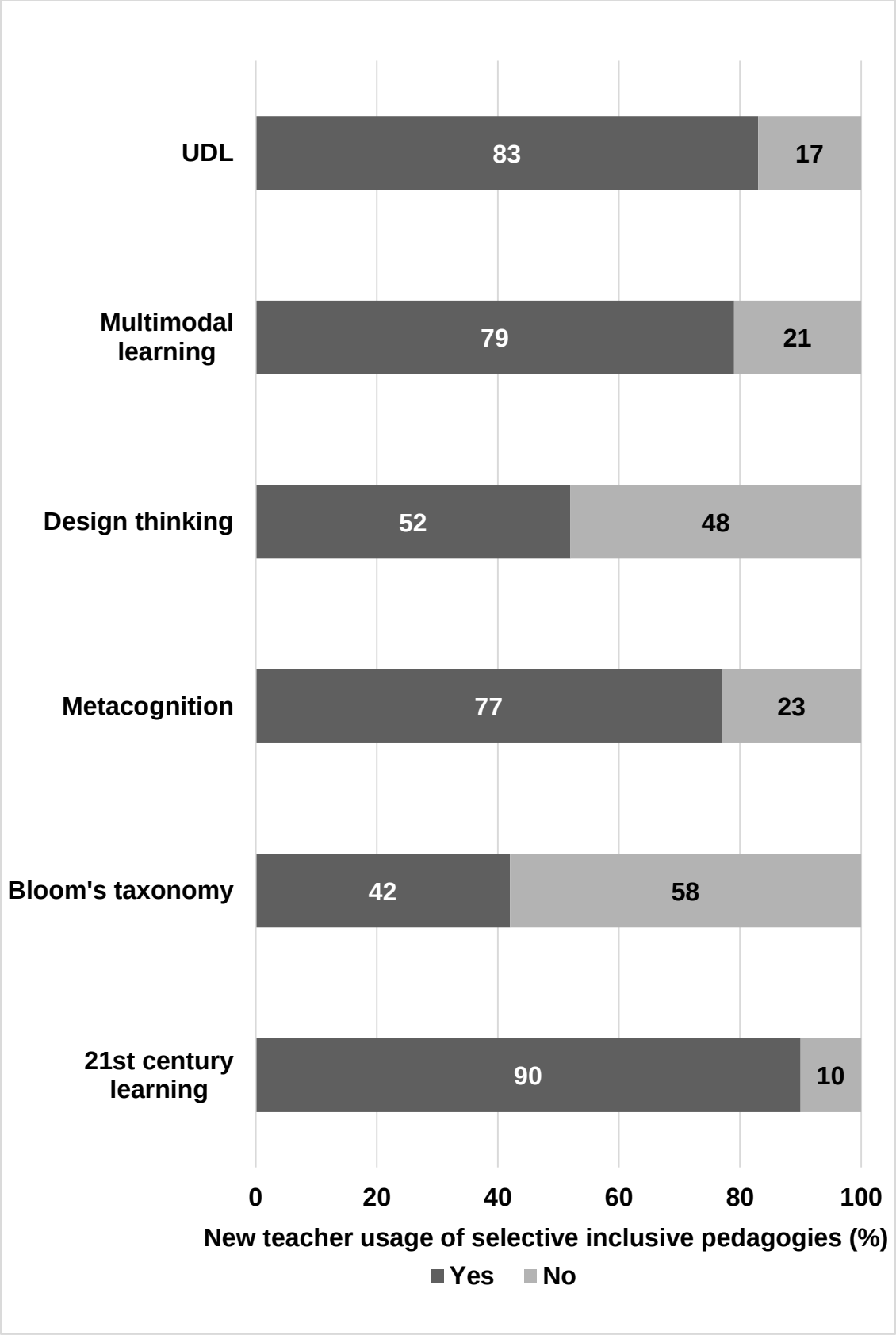

Figure 3. Participant assessments of their use of select inclusive pedagogies.

When asked the same question about UDL, multimodal learning, metacognition, and 21st-century learning, participants reported by much larger margins that they did indeed utilize these frameworks in their practice. A majority of participants, 83%, reported using UDL strategies in their teaching practice. Participants reported using UDL-related strategies such as differentiated instruction and choice boards, as well as plenty of opportunities for student choice, such as selecting the modality of assignment submissions. The majority of participants also reported that when they used strategies like these in their practice, they felt that students were more engaged in class. Though they may not have known the precise names and principles, many of the ideas were met with acclaim. New teachers largely had used some of the principles, despite being unaware that they had encountered adjacent concepts in their teacher education courses. This indicates that teacher education courses were effective in imparting the ideology of inclusive frameworks like UDL, but not the intact frameworks themselves.

The reporting of participants indicates that 79% are using multimodal teaching strategies in their practice. Participants who stated that they use this type of strategy in their practice reported using multiple forms of representation, such as text, pictorial representations, sound, and multimedia in their lessons. Also stated was the practice of allowing students to complete tasks in a variety of way. This two-way model of multimodal expression was alluded to by the majority of participants as well as a consensus that these practices helped them reach more of their students by providing opportunities for a variety of methods of approaching the assigned tasks. This vast majority is indicative of participants being highly invested in creating lessons and tasks that are accessible to students with a range of modal preferences. This empowers students

by allowing them to learn as they do best, rather than one convenient modality such as lecture or text.

A strong majority, 77% of participants, reported using metacognitive strategies in their practice. A follow-up question illustrated some of the strategies that these new teacher use in their practice. Some of the more common ideas included think, pair, sharing, self-assessment, and other reflective exercises such as journaling. A particularly consistent answer was constructing success criteria on assignments and how they contribute to the development of executive function. Participants reported that early investment in strategizing resulted in more resourceful, determined students who are all capable of following through with their pre-planning and converting it into successful completion of tasks.

A vast majority, 90% of participants, reported that they use 21st-century teaching techniques in their practice. When asked what kind of activities they use that align with the goals of 21st-century learning, participants reported a wide range of strategies such as differentiated instruction, student-directed learning, alternative modes of assessment, collaborative learning, and a range of practices analogous to authentic assessment. There were many unique responses from individual respondents including various classroom models like Tribes, SPICE, 5Es, and other recognized frameworks of inclusivity. The range of responses reflects the time spent covering these ideas in teacher education. New teachers are well-capable of developing the skills that their students require to thrive in the information age.

Teacher implementations of inclusive practice. A major thread in the interviews across all participant strategies was an emphasis on collaboration. As

highlighted by Marigold, “I utilize a lot of group work in the class and I believe that’s a very effective pedagogical tool” (Int. 6, p. 3). David stated that in his class since his students are almost always working in groups, “There is no one who is going to be afraid that that they’re going to look dumb, because they didn’t come up with anything, because their group is going to share what they came up with” (Int. 1, p. 2). Since the students are working collaboratively with their peers, there is not a fear of isolation and embarrassment. He comments that “It gives them a safety net”(Int. 1, p. 2). Don, in the same vein, commented that when students are in groups “They were always willing to give it a go. They weren’t the most engaged I’d say, but collectively they felt safe” (Int. 5, p. 6). Don highlights that though students feel supported in groups, they can often get off track. By extension, he comments that his collaboration creates and inclusive, safe space for students to learn in. Similarly, Hussein comments:

> In my experience, some students will pick up on learning experiences differently than others, but by consistently providing variety. They might be a good auditory learner and are normally happy to sit back and watch teachers lecture, but by giving those students who would do well regardless of what we do, give them an opportunity to learn in different styles. They too become better students as a result. (Int. 2, p. 4)

Hussein also distinguished “I know there’s much more to 21st-century learning than that technology caveat” (Int. 2, p. 4). The majority of responses on the questionnaire regarding 21st century were entirely focussed on the use of technology. Hussein’s outward recognition of nontechnological components of 21st-century learning, such as collaboration with persons of differing perspectives and alternative instructional design was novel.

Another interviewee, Lyanna, also identified inclusive strategies that had little to do with technology. Lyanna stated that one of her major inclusive initiatives was differentiation: "Specifically with assessment, I allow for students to do a variety of types of tasks, rather than forcing them to do the same kind of assessment" (Int. 3, p. 1.). Olga commented that the ideal inclusive classroom would be, by necessity, "Very student centred" (Int. 4, p. 3)." She later commented, "It's not fair if one student benefits and another doesn't. I try to accommodate for everyone in the classroom. Sometimes, that's harder than it sounds. I try to accommodate for the range of learners as best as possible" (Int. 4, p. 5).

Don also highlighted his use of metacognitive strategies: "I think it's very valuable to sit down with students and help them develop long-term goals and goals that are more practical than just 'I want to get an "A" in this course'" (Int. 5, p. 2). It was mentioned how shallow student goals are in the beginning, in contrast to the incredible depths of reflexivity that they eventually attain with practice and support. Don was well able to unite different inclusive practices together in his particular framework of inclusivity. As represented by Marigold's response to a question of types of assessment she commonly uses, essay writing still has a place in the assessment arsenal: "I really like essay writing, not just for the written aspects, but for the creative parts like poems" (Int. 6, p. 2). She highlighted that when students select their topic, they synthesize their learning by uniting the potentially disconnected parts in one coherent form of expression. Therefore, as illustrated, participants centred their inclusivity on collaboration, as well as providing opportunities for students to strategize, journal, and create with their knowledge.

What are their attitudes towards inclusive pedagogies? A recurring theme in the responses of participants is the positive perception on inclusive practices and

strategies, while commenting on their lack of practical experience in using them during their teacher education experiences. Participants during the interview were asked whether they thought that the guidelines were effective practices in the classroom.

As shown in Figure 4, a vast majority of participants, 83%, agreed that they thought that UDL were effective ideas (75% agreed, 8% strongly agreed), while the remaining 17% were undecided on UDL's efficacy. This is illustrative of a cohort of teachers who value inclusion, be it built around UDL or another framework. An entirely different distribution occurred when participants were asked for their opinions on how realistic the implementation of UDL guidelines would be in their teaching practice. Exactly half of participants stated that they were to one degree or another confident that the expectations were realistic (8% strongly agree, 42% agree), while the remaining 50% were uncertain. Participants were quick to comment on their belief in the efficacy of UDL principles, but were concerned about how realistic implementing them in their practice would be indicating that they agreed that they were in the best interests of their students, but perhaps not within their current ability given their teacher education.

Philosophies of inclusivity. As illustrated above, participants were keen to use select inclusive strategies. This subtheme looks at what their motivations and attitudes for inclusive practice are. Hussein likened effective teaching to inclusive teaching: "I have always liked the phrase 'If children aren't learning how we teach, perhaps we should teach how they learn.' Obviously, this comes down to different teachers' ability to get to know their students and read them" (Int. 2, p. 4). Hussein illustrates his view that effective instruction is inclusive of all learners in the class and that this is entirely dependent on the varying abilities of teachers to meet the needs of learners.

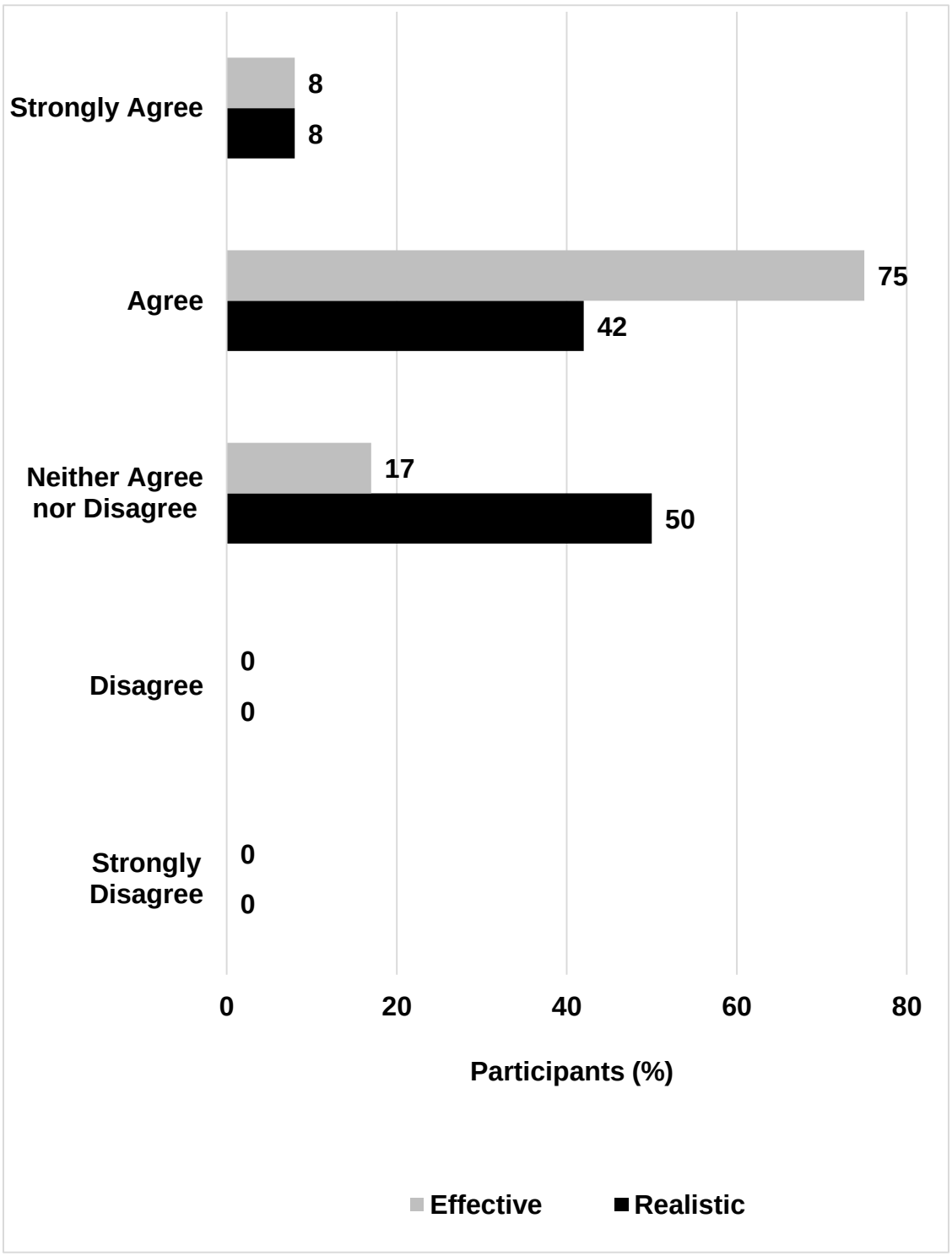

Figure 4. Perceived Universal Design for Learning efficacy and realism.

David commented in his interview: “With lower order thinking it’s a matter of memorization, for the most part, which has its place. Beyond that, the true learning is how to use that knowledge and that’s when higher-order thinking happens” (Int. 1, p. 3). This highlights a common belief to all those interviewed that lower-order thinking has a place in the early learning on a given topic. David also gave insight to his views on how multiple intelligences play a role in his practice: ”I’ve [incorporated] visual into my lessons along with digital and auditory components that would be necessary for some students, but it would benefit all your students” (Int. 1, p. 7). Similarly, Marigold in her interview stated that “I really believe in Howard Gardner’s multiple intelligence theory and I do think it’s very important to be aware of learners, bodily-kinesthetic, mathematical-logical, visual spatial and more” (Int. 6, p. 1). The data from the survey illustrated a positive perception of the theory of multiple intelligences.

Though there is a common tone of skepticism about what constitutes a “best practice”; it is not universal. When asked what he thinks of UDL, David responded, “I’m usually not skeptical, I will hear them out before I get skeptical. Yes, when someone tells that they have a great idea, my first reaction is ‘Let’s hear it’” (Int. 1, p. 8). There were corroborating statements in another two of the six interviews, but the remaining the participants were skeptical of more “best practices.”

Olga also explained what a student-centred pedagogy meant to her: “Student-centred is the teacher having a vested interest in the students and they care about what the students care about, as well as, open to any questions, teaching so that it is to student benefit” (Int. 4, p. 4). Furthermore, she stated that “Yes, once they have the foundation of lower-order thinking you can build on it with higher-order thinking. Scaffolding them up towards the creating, evaluating, and interpreting data from the world around them” (Int.

4, p. 1)" demonstrating that lower-order thinking activities do have a place in a portfolio of activity types. An example of chances for higher-order thinking as stated by Lyanna would be "Things like building cars, building roller coasters, and letting them actually apply their knowledge" (Int. 3, p. 2). These higher-order thinking activities are more to do with application of knowledge as well as cognition that requires direct application of theory into practice.

Needs of New Teachers

The final questions of the survey and interview asked participants to assess their preparedness for a variety of challenges to inclusion. These challenges included utilizing knowledge students had acquired in past courses and aligning their own teaching practice with 21st-century learning. The questions also identified the tools that would help them most develop their ability to be inclusive practitioners in order to create a safe, equitable space that would meet the learning needs of students.

This question asked participants for their degree of agreement with several statements of preparedness based on teacher education. As shown by Figure 5, the statement "I feel ready to teach the range of students of Ontario" was met with a slight majority of participants reporting agreement. A narrow majority, 55% of participants, reported agreement (37% agreement, 17% strong agreement), 21% reported neither agreement nor disagreement, and 25% reported disagreement (21% disagreed, 4% strongly disagreed). The similar statement "I feel ready to optimize individual student learning" was met with a strong majority of participants expressing agreement (58% agreement, 21% strong agreement), 4% reporting neither agreement nor disagreement, and 17% reporting disagreement.

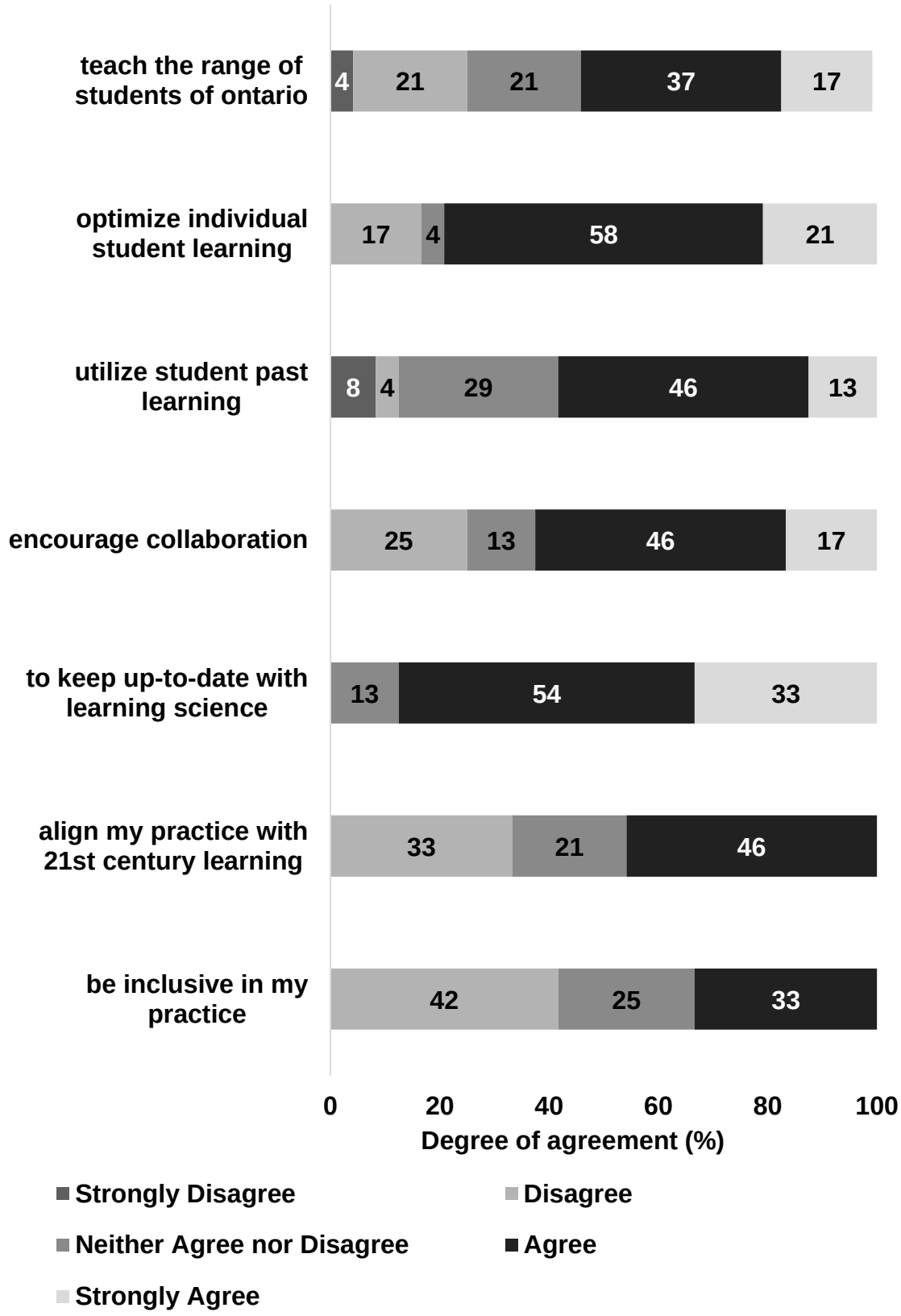

Figure 5. Participant assessments of their teacher education preparedness.

When asked if they agreed with the statement "I feel ready to utilize student past learning," a moderate majority of participants expressed agreement (46% agreement, 13% strong agreement), 29% reported neither agreement nor disagreement, and 12% reported disagreement (4% disagreement, 8% strong disagreement).When participants were asked whether they agreed with the statement "I feel ready to encourage collaboration," a majority expressed agreement (46% agreement, 17% strong agreement), 13% reported neither agreement nor disagreement, and 25% reported disagreement.

When asked whether they agreed with the statement "I feel ready to keep up-to-date with learning science advancements," a vast majority of participants expressed agreement (54% agreement, 33% strong agreement), and 13% reported neither agreement nor disagreement. A similar question of personal drive for alignment, when asked whether they agreed with the statement "I feel ready to align my practice with 21st century learning," a large minority, 46% of participants, expressed agreement, 21% reported neither agreement nor disagreement, and 33% reported disagreement. When asked whether they agreed with the statement "I feel ready to be inclusive in my practice," a minority, 33% of participants, expressed agreement, 25% reported neither agreement nor disagreement, and 42% reported disagreement.

Participants also critiqued the theoretical learning within teacher education, in addition to the perceived need for additional practicum focus. Some prevalent ideas included the identification of inclusive practices, a need for a unified inclusive practice class, and the perceived superficial opportunities for professional development. In response to a follow-up question about if he finds resources like the UDL Guidelines useful, Don stated that "I think it's useful for teachers, especially those that aren't comfortable letting go, the ones who don't know that it's safe to let go of the control,

students won't just light the room on fire" (Int. 5, p. 6). Don also spoke about the role of teacher education as setting a benchmark for teaching practice: "We have to define things so that we can group them and talk about them as teachers. Otherwise what the heck are you talking about, if everyone calls it a different thing?" (Int. 5, p. 6). Don clarified that "Inclusive practice, like everything else on his list, speaks more to teaching well, keeping your students in mind, and trying to reach your students in different ways" (Int. 5, p. 6). Similar advocacy of student-centred learning is mirrored by Marigold who argues that inclusive teachers "[Put] their intellectual laziness to rest and [design] student-centered lessons" (Int. 6, p. 4). She clarified that "Finding time to go above and beyond the activities that they were taught with, the traditional conventional pedagogy that fosters unidirectional flow of information." (Int. 6, p. 4).

The idea of superficial classroom design alluded to by Marigold was directly addressed by Don in his response to what could use more focus in teacher education. Don described how much of the inclusive practice learning completed in teacher education was very superficial. He clarified his meaning with "Gardner is a fun fellow. I think he's misinterpreted. I think he's being turned into a bumper sticker, so he's kind of the 'Jesus fish of the teacher highway'" (Int. 5, p. 4). Don then stated his view of superficial inclusivity brought about by the rise of buzzwords: "Just because if you say that you're teaching with multiple intelligences, doesn't mean you actually are" (Int. 5, p. 4).

Olga's view of teacher education was similar: "They go into different teaching strategies, which can be applied to making the class more inclusive, but they don't demonstrate them, they just say these are different teaching strategies, go ahead and use them, if you want" (Int. 4, p. 6). Olga also commented that "I don't think I learned in teacher education how to be truly inclusive. They don't even go into the practical

application of it" (Int. 4, p. 6). Hussein in his interview also commented that he does not feel that he has made good use of inclusive practices: "I know we looked it up. It's always been mentioned in passing without being expanded upon in my own teacher education program" (Int. 2, p. 2). The theme of additional time spent on pedagogical knowledge development was commonly a topic of participant responses, it was usually mentioned as a recap of what they desired to see in teacher education.

What helped new teachers develop their inclusivity? Participants often articulated what types of supports would have been helpful for them to become more inclusive in their practice, in the course of answering other questions as well as an unambiguous question asking them to rank a set of proposed resources. Most of these resources were in the form of alterations in the design of teacher education. Some of the participants articulated a need for a more practical focus in teacher education, while others advocated for a better modeling of student-centred teaching in the program.

Towards the end of the survey, participants were asked to rank some potential supports on their ability to help promote inclusive practice for them personally. As illustrated by Figure 6, the most popular supports were additional involvement of special education specialists, which had unanimous approval (24% good, 38% very good, and 38% excellent) and the creation of specific professional development on inclusive practices which was also unanimously viewed positively (38% good, 33% very good, and 29% excellent). A close second was additional practicum, which had 92% approval (21% good, 25% very good, and 46% excellent). The next most popular was extending teacher education at 63% (38% good, 17% very good, and 8% excellent). The least popular option was rewriting curricular documents at 58% (33% good, 17% very good, 8% excellent).

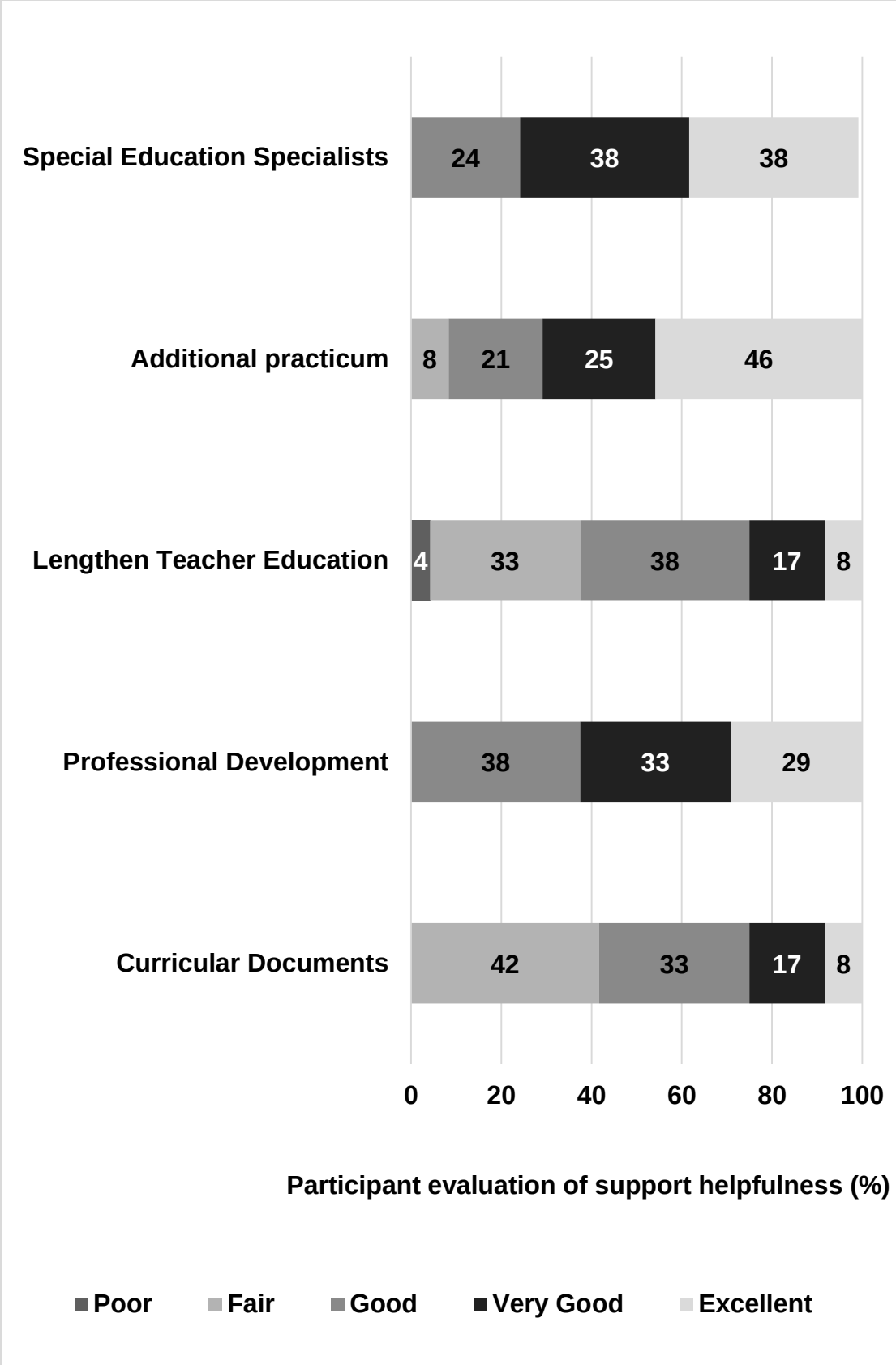

Figure 6. Participant perception of the helpfulness of potential inclusivity supports.

Therefore, in order of preference participants in this study would prefer to see:

1. Additional involvement of special education specialists
2. Creation of specific professional development on inclusive practices
3. Additional practicum in teacher education programs
4. Rewriting curricular documents to feature inclusivity more prominently
5. Extending teacher education in general

In the interview, Lyanna spoke about an experience she had in training modules external to teacher education: “We did activities on active listening, walking into a situation and having to physically deal with it, rather than just talking about it” (Int. 3, p. 6). She explained how the experience was different from the preparation for practicum in teacher education: “We had to get up and act out what we would say, how we would react, which is so much more beneficial than just having a discussion about it” (Int. 3, p. 6). Lyanna summarized her point: “You can understand all the theory that you want, but applying it is an entirely different set of skills” (Int. 3, p. 6). The details of the experience highlight a point that was made by others; that is, teacher education was not perceived to provide practical development.

Olga articulated this idea in a different way. She argued that perhaps the challenge was not with the amount of practicum but with the limited amount of praxis in teacher education. When asked about what she wished would receive more focus, she said “Maybe not more practicum, But more practical application of things in the classroom” (Int. 4, p. 6). She elaborated that instead it would be more helpful if “When you’re teaching a concept to the new teacher candidates; you actually go through what that looks like in practice rather than just spitting out theoretical constructs. I think that would be

more helpful" (Int. 4, p. 6). This point is also articulated by Hussein in response to what he wished received more emphasis in teacher education: "I do also believe an emphasis in teacher education classes should be more time spent working on and actually practicing teaching strategies, even before we go to practicum" (Int. 2, p. 8).

Hussein's idea of earlier and more extensive chances to practice inclusive strategies was shared by other participants. Hussein further explains his thinking: "Practicum is invaluable, but remember these are real-life situations with real students. If we're going in there relatively blind, but even when it's at one line, it's still a classroom of students for a month" (Int. 2, p. 8). This highlights that though practicum is valuable, it was also a high-pressure situation as student learning is in the hands of someone who has likely never been in charge of a classroom before. Even though in teacher education the first practicum experience is typically one class, eventually working up to a full-load by the end of the third block, the teacher candidate still begins with the responsibility for the education of an entire class.

Don also thoroughly explores the topic of how teacher education could be a little more practical, but not necessarily more practicum. He began this line of thinking: "A lot of the time when asking people this, their immediate response is give us more practicum" (Int. 5, p. 9). There is a perceived need for more practical focus in teacher education. He changes gears slightly and discusses: "I think a bigger problem is the gap between willingness to discuss theory and practice at the same time" (Int. 5, p. 9). Don discusses a perceived, artificial separation between teacher education theory and the practical applications that would make a difference in improving the inclusive practice: "The conversation is talking about theory, we're not going to talk about practice in this

conversation. Practice comes later, were not to talk about that here, don't ask about it. I don't think that's helpful" (Int. 5, p. 9). Don describes a hypothetical situation where an instructor is discussing theory, but not providing an opportunity for practice of that new learning: "I think it's essential to learn theory. It's essential to have the time to practice it, but if you're not bridging that anywhere, there's no openness to consider what would you do, and what would that specifically look like?" (Int. 5, p. 9).

The lack of bridging, as Don describes it, places teacher candidates at a disadvantage when they enter the classroom: "By the time they get to that point where they actually have to do it- they are terrified, because all they know is the theory. They've never been asked to consider the application" (Int. 5, p. 9). He explains, since there is little opportunity to practice the theory that you have just learned, teacher candidates have unnecessary extra pressure when they try and implement it in their practice. His proposed solution is to implement more early opportunities to practice: "So, I would advocate more bridging, more early bridging, let's start considering it now. You might not actually get the chance to practice it today, let's look at that" (Int. 5, p. 9). His argument is that earlier practice of the theory prior to practicum will result in better prepared candidates in their practicum.

Summary

The results of the course audit and the data instruments have provided detailed answers for the research questions. The responses to the questionnaire and interview illustrate a substantial capacity for inclusivity, with a distinct undertone of skepticism for what constitutes an inclusive practice. Participants also demonstrate moderate alignment via demonstrated and frequently references ways in which they provide accessible

opportunities for student learning. Furthermore, participants also explored and identified methods for cultivating inclusivity at the centre of teaching practice.

In comparing the findings of the questionnaire and the interview with the goals and aims of the audit of courses of teacher education, several discrepancies were illustrated. These discrepancies included the inclusive outcome, readiness for inclusive practice, pedagogical knowledge outcomes, practical focus, and a skepticism of teacher education preparation for inclusive practice. These findings will be discussed in order to explore the implications for the field.

CHAPTER FIVE: CONCLUSIONS

This explanatory mixed-method study looks at the perceptions of new teachers germane to inclusive pedagogies and their specific needs to improve the inclusivity of their lessons. It explored the efficacy of teacher education to develop teacher candidates' skills through the constant comparison of a course audit and their reflections as facilitated by two data instruments—a questionnaire and a semi-structured interview. It specifically looked to explore contemporary thinking of new and soon to be new teachers regarding inclusive practice and the needs of these teachers to further develop their facility as inclusive practitioners. These new teachers will be among those responsible for shaping the learning of the range of students in Ontario, among whom 17% access special education services (People for Education, 2013). The practices of these new teachers will become a substantial overall component of the practice of teachers across the province through generational turnover (Townsend & Bates, 2007).

This study examined the reported perspectives of 40 new teachers on a questionnaire and their ruminations during an interview that identified their perceptions that effective teacher practice necessitates the development of inclusive instruction (e.g., accessible, safe learning opportunities), higher-order thinking (e.g., executive function, strategizing, creativity, and critical-thinking), and design perspectives that allow for teachers to harness the past learning and imagination of their students in the learning opportunities of their teaching practice.

This study would form a suitable foundation for other studies to explore the efficacy of teacher education. It looks at the ability of teacher education to develop inclusive practitioners. It analyzes deep perceptions and predisposition to inclusivity from

the current and recently graduated teacher candidates in order to elucidate the needs and alterations necessary for the success of the next generation of teachers in the goal of inclusion.

Summary of the Study

A mixed-method research methodology was utilized during this study to explore new teacher perceptions of inclusive practice. It specifically sought to describe the alignment of new teacher pedagogical views with those of inclusive practice. A mixed-method research methodology (Creswell, 2013) provided the data required to explore these perceptions from both quantitative and qualitative lenses. This analysis focused on consolidating and crystalizing the perceptions of emerging teachers through a set of data instruments: a questionnaire and a semi-structured bank of interview questions for six critical-case interviews that yielded an assessment of knowledge, resources, facility, and illustrated the needs of those attending teacher education. The data gathered included the results of the course material audit in the intermediate-senior teacher education, the quantitative and qualitative data from the questionnaire, and the data gathered from the interviews.

Data was gathered through three means: (a) an audit of course materials completed by the researcher, (b) a mixed-methods questionnaire completed by all participants, and (c) individual interviews with a selection of questionnaire participants who indicated interest in the interview process at the end of their questionnaire. The results of this audit would form the baseline for comparison with the results of data instruments. The questions asked in the questionnaire (Appendix A) focused on gathering demographic information, quantifying the knowledge base of new teachers, and revealing

topics for additional questions. Additionally, if the participant made themselves available, an interview (Appendix B) was offered on a critical case basis. This method provides an opportunity to survey the entire range of responses with fewer interviews. Participants were selected in order to fully explore the range of perceptions revealed during the questionnaire phase of the research.

The results of the course audit (Appendix C) and the data instruments provided detailed answers for the research questions. The responses to the questionnaire and interview illustrated a substantial capacity for inclusivity, with a distinct undertone of skepticism for what constitutes an inclusive practice. Participants frequently referenced ways in which they provide accessible opportunities for student learning. Furthermore, participants also explored and identified methods for improvement, refinement and resources for cultivating inclusivity at the centre of teaching practice.

In comparing the findings of the questionnaire and the interview with the goals and aims of the audit of courses within the teacher education program, several discrepancies were illustrated. These discrepancies included the outcomes of teacher education, readiness for inclusive practice, pedagogical knowledge, practical focus, and a skepticism of the preparation of teacher education for inclusive practice. These discrepancies and the results of the data instruments are the topics of this chapter.

Discussion

The course audit revealed the knowledge that was covered in various courses of the teacher education programs, while the quantitative sections of the questionnaire enabled a snapshot of the perceptions, knowledge, comfort, and usage entering the teaching profession as well as an initial needs assessment of what teacher education

needs in order to better prepare teacher candidates for the rigours of the inclusive classroom. Analysis of themes of the questionnaire shaped the direction of the questions in the interview leading to targeted questions that explored the elucidated themes. The following is a direct comparison of the identified topics of discussion of the courses of teacher education compared to the stated perceptions of new teachers on a survey questionnaire. Following up on the results of this comparison, the identified themes of the qualitative sections of the questionnaire and the interviews will be explored to illustrate the deeper perceptions of new teachers and their implications for the field of education.

New Teachers Know a Fair Deal About Some Inclusive Pedagogies

New teachers demonstrated a great deal of knowledge about approximately half of the surveyed inclusive pedagogies. This is in contrast to the published ideas of Forlin et al. (1996), who state that most teachers are reluctant to accept students with differing needs in their classroom. New teachers were surveyed and the vast majority responded that inclusion of all learners is of great importance. Most prominently, 21st-century learning, multimodal learning strategies (though a very select few recognized them by that name), and strategies of metacognition were positively responded to. As identified in the course audit, these three inclusive strategies were built upon in every one of the selected courses. The ideas for the aforementioned three pedagogies, precisely as identified on the course syllabi were extremely well responded to on the questionnaire, and were the most common responses of participants on the interview, indicating that new teachers had a good grounding in the ideas from their teacher education experience.

Twenty-first century learning. Unsurprisingly, the questions relating to 21st-century learning were positively responded to by a majority of participants. A decisive

majority of new teachers reported positive views of their knowledge, this coincides with a consistent coverage of 21st-century learning in the audited courses of teacher education. A similar trend is also available in terms of comfort and usage of 21st-century learning, where once again a majority reported being comfortable with implementing the strategy in their practice, and the vast majority reported actively using the strategy in their practice. This indicates that 21st-century learning is a common component of emergent teacher practice as fitting their experience of university, and their journey navigating the information age.

The information age, as stated by Kress and Selander (2012), requires students to be forward-thinking, and cognizant of their agency with their consumed media. The closeness of integration with the consistent torrent of media, has necessitated advanced meaning-making skills to be developed (Kress & Selander, 2012). Part of the responsibility for the development of these skills fall to teachers (Saavedra & Opfer, 2012). In the context of this study, new teachers are a solid indicator of the future widespread practices, as their current practice will be a credible baseline of the near-future strategies and thinking of teachers at large.

New teachers, as indicated by the survey and interview, are certainly inclined to developing these skills in their practice, however often are unsure of their levels of support. Topics mentioned by the participants relating to 21st-century learning were found in each and every course, specifically, integration of technology, collaboration, differentiation, creative expression, and multiple modes of communication. A similar emphasis was found in the proceedings of the National Educational Association. The integration of collaboration, creativity, critical thinking, and communication is directly

referenced as a key component of 21st-century practice (National Education Association, 2010). Multiple other instances of literature emphasize the importance of 21st-century teaching practice, as it connects to the ideas of 21st-century society, with 21st-century learning for our students (Gardner, 1999; Kong et al., 2014; Lambe & Bones, 2006). These ideas connect with the new teacher perception of the importance of 21st-century teaching, and the comfort and use of allied strategies and practice, indicates that they are catching on with the next generation of teachers.

Metacognition. Metacognition is a complex series of connected abilities, and as described by one participant, is comprised of reflexivity, executive function, knowledge of the self, and strategizing for success in the future. Metacognition and the components just mentioned are integrated into all of the audited classes. A majority of participants reported that activities that required pre-planning, as well as reflection on student learning were a central component of their practice. This was a unique result among the statements as suggestions here were suggested by the participants to apply to both their students and themselves. One even suggested a parallel development between teacher strategizing and student development of executive function. Developing executive function as described would be a key component of being able to overcome the challenges faced in class today, and society tomorrow (Pintrich, 2002). The recognition of the importance of metacognition, is directly seen in the emphases in teacher education courses, the levels of knowledge, comfort, and their usage by new teachers. This connects to the current lack of knowledge and understanding about 21st-century learning (Saavedra & Opfer, 2012), and that increased metacognition in our students and teachers would better enable thinking to overcome these challenges (Veenman et al., 2006).

This idea is well represented by the topics of the audited courses in the teacher education program. Correspondingly, it was found that a majority of the surveyed new teachers have: positive perceptions of their knowledge of metacognitive strategies; are comfortable with their use; and a vast majority state that they regularly implement metacognitive strategies in their practice. The resulting statements from participants regarding the questionnaire and interview are indicative of a deeply held view that metacognition is a crucial skill-set that is central to motivation, persistence, and success in the information age.

This is in contrast to the past work of Wee, Shepardson, Fast, & Harbor (2007), who suggest that metacognition is a rarity among inexperienced teachers who simply do not feel comfortable with utilizing metacognitive strategies in their practice. The results indicate that new teachers feel ready, are comfortable, and self-evaluate as being well-versed in cultivating strategic learners. New teachers believe that metacognition is a pillar of successful, resourceful thinkers. They believe that it will enable their students to be strategic and to better confront problems by leaning on past stumbles in order to effect changes to produce future successes. This view of the surveyed new teachers is also seen in multiple instances of literature (Roll et al., 2007; Veenman et al., 2006), indicating an alignment between the perceptions of new teachers and the research thinking of today.

Multimodal learning. Multimodal learning is known by many names by many different people, such was also the case with the participants of the study. The vast majority knew of the principles by other names and from other circumstances. In fact, most participants were initially confused until they inferred the true meaning from the questions. Once participants recognized some of the principles, they began connecting

the questions with the principles they already knew. The result is that participants know a tremendous amount, if not the exact terminology and are fully committed to highlighting alternative forms of expression. A similar concern is illustrated by Bezemer and Kress (2008), who argue that even as text is subsumed by other modes of expression, the dominant mode of assignment and evaluation, among established teachers remains text. The results of this study suggest that marginalized forms of expression will be utilized by new teachers more frequently, or at least in tandem with other more established forms. These modes would enhance student learning by expressing the knowledge taught in different modes, as well as providing options for students to express their learning in more ways. The additional modes would broaden the intersections where students might engage with the material, deepening their immersion in the content.

An adjacent concern is considered by Hull and Nelson (2005), who state that the potency of multiple modes of expression is well recognized, but older practitioners are unwilling to switch modalities to the advantage of their students, instead relying on the dominance and convenience of print (Hull & Nelson, 2005). The argument is that the ideas for multimodal learning are common, but the terminology and acceptance are rare among earlier generations of teachers. While current teachers may have been recalcitrant to integrating newer modes of communication into their practice, as illustrated in this study, the emerging cohort of teachers identify as being more likely to use multimodal teaching in their practice.

Almost two-thirds of participants have positive perceptions of their knowledge of multimodal learning. This corresponds to an emphasis of related topics in the audited courses of teacher education. This indicates that the emphasis is having the desired effect

of encouraging this inclusive practice. Also supporting this interpretation is that a decisive majority of participants were comfortable with multimodality in their practice, and 79% stated that they make use of it in their teaching practice. New teachers are heavily invested, as a whole, in making their instruction multimodal, this likely stems from a similar emphasis from their instructors and their assignments.

New Teachers Lack Understanding of Some Inclusive Pedagogies

Conversely, and surprisingly, many of the surveyed participants had negative perceptions of their knowledge of Bloom's taxonomy and design thinking, and UDL, likely because they were only mentioned on a theoretical basis, rather than demonstrated in such a way as to illustrate their practical value. A majority of participants had either mixed or negative views of their knowledge of these specific inclusive strategies. Precisely, the same trend was seen in comfort and usage of these strategies. New teachers are not completely separate from the influence of past generations and consequently bear some of the same enduring views (Forlin et al., 1996).

Bloom's taxonomy. A majority of participants reported not using Bloom's taxonomy in their practice. Furthermore, 63% of participants did not feel comfortable with using Bloom's taxonomy in their practice, though a narrow majority reported having positive perceptions of their knowledge. Participants perhaps knew the barebones of the theoretical construct, but had not been given the opportunity to practice its application, as per the criticism of the practical aspects of teacher education, and analogous comments on the open-answers of the questionnaire. As stated by Thompson et al. (2008), Bloom's taxonomy is difficult to implement without practice beforehand, but, opportunities to

integrate the theory into one's practice, pay dividends later on. New teachers might benefit from these opportunities and deepen their understanding accordingly.

Participants did not list very many activities or strategies that they used for Bloom's taxonomy. This indicates that there is a gap between their knowledge and their abilities to utilize the knowledge in their practice. Bloom's taxonomy is assumed knowledge in the course syllabi, new teacher ambiguity on their knowledge is suggestively symptomatic of an earlier lack of mastery of the content. Early and thorough experience in applying the concept would potentially reduce the mixed reception Bloom's taxonomy receives in the surveyed participants' teacher education experience. New teachers display much of the same superficial knowledge of Bloom's taxonomy as described by Anderson et al. (2001). When asked about Bloom's taxonomy, new teachers respond with short, memorized steps and stages such as the domains of learning, or the hierarchy of types of thinking, easily the most easily regurgitated elements. These are the content types that are most often delivered in classes according to those surveyed. A deeper understanding of Bloom's taxonomy can be developed with repeated practice, and opportunities to receive feedback on the design of your application (Cannon & Feinstein, 2005; Forehand, 2010). New teachers could benefit greatly from the aforementioned opportunities.

Design thinking. It was surprising to see that a small majority of participants reported using design thinking. Many new teachers on the survey had initially stated that they held negative views of their knowledge, but over the course of the survey they began to see examples and connected the concepts with learning from other concepts. Design thinking was featured in a small role in the courses audited and never by name.

Participants were uncomfortable with their knowledge of design thinking, but a narrow majority reported using it in their practice, once they saw the types of activities. When asked for examples of what constituted design thinking, some participants reported performance assessment tasks, which involve creating and designing solutions with previous learning, though many more reported not using the activities at all.

Design thinking would be an effective framework for integrating other inclusive strategies and practices (Abell et al., 2011). The efficacy of design is predicated on other inclusionary practices like creating with knowledge and the cycle of reflection in order to refine intellectual products. One such example is from Bloom's Revised taxonomy which states that creating with knowledge is at the apex of the orders of thinking (Anderson et al., 2001). Similarly, the idea of reflexivity for strategizing and recognizing the best methods for reaching goals utilizing the tools that are readily available is a component of design thinking (Denning, 2013). The practices and statements of new teachers are striving for such integration, but are missing key components that would be remedied with additional instruction, and the modeling of these outcomes and goals in more detail, in teacher education.

Universal Design for Learning. A vast majority, 79% of participants, did not hold positive views of their knowledge of UDL. As stated by Edyburn (2010), the majority of educational professionals do not possess a substantial knowledge of UDL. Similarly, 76% of participants reported having mixed or negative views of their comfort with UDL. Despite this, once they had seen the UDL guidelines in the questionnaire, 83% stated that they had unknowingly utilized many of the guidelines in their teaching. New teachers, therefore, knew more than they originally thought. Katz (2012)

commented that teachers generally accept the principles of UDL as good practices, but find it difficult to transfer all of the principles to their practice.

In this study, many participants commented on how much they liked the UDL guidelines, despite stating that integrating all of the principles could pose problems regarding time-constraints. Four of the six interviewed asked for copies of the guidelines for their personal teaching practice. This is suggestive of a cautious desire of new teachers to learn more, similar to the conclusions of Ainscow and Miles (2008), who characterize the individual inclusive instruction of all teachers as a steady goal. This is a hopeful sign, as Forlin et al. (1996) state that inclusion of students with different abilities begins with teacher acceptance of the necessary accommodations for learning in their own classrooms. From these small beginnings, this spirit of inclusion would spread and permeate the width of educational practice.

In summary, new teachers have substantial pools of knowledge of two-thirds of the surveyed pedagogies, while having a lacklustre understanding of both design thinking and Bloom's taxonomy. Though other research has suggested that knowledge of inclusive practices might be lacking (Edyburn, 2010; Forlin et al., 1996), this study and other research (Ainscow & Miles, 2008; Evans & Williams, 2010; Florian & Black-Hawkins, 2011; Florian et al., 2010; Saab et al., 2012; Sharma et al., 2008) suggests that it is practical application that is missing instead. Recommendations for how to address this will be discussed under implications and recommendations.

Alignment With Inclusive Practices

Participants were unanimously in favour of being inclusive practitioners and connected being a good teacher with being inclusive in teaching. Their definitions of

inclusion were adjacent, but differences were present. Defining inclusion is difficult as illustrated by Florian et al. (2010). Upwards of five separate definitions are widely utilized, ranging from students with a range of abilities being included in the classroom, to the views of all students being accommodated in the current learning (Florian et al., 2010). Participant definitions of how they are inclusive were just as wide ranging. Valuing all of the past learning of students and ensuing that all types of learners had a place to learn equitably was unanimously agreed upon by all those interviewed. The spirit of inclusion is well-received, however, the methods of inclusion as well as their perceived preparedness of themselves and their peers were varying among participants.

Participant cynicism and skepticism. Participants expressed a common undertone of cynicism and skepticism in their discussion regarding their experience of teacher education, the preparedness of their peers, and a general malaise with the use of buzzwords. Participants expressed their frustration that though they wanted to develop as inclusive practitioners in teacher education, that they were often stymied by circumstances, their teaching style of their instructors, and the design of the program. Other research has revealed similar frustrations, with a fundamental clash of opinion, and access to developmental needs of teacher education (Ainscow & Miles, 2008; de Boer et al., 2011; Sharma et al., 2008).

Participants in this study consistently stated that they felt that teacher education has not prepared them as well as it could be, similar to the findings of de Boer et al. (2011), which suggests that deficiencies of teacher education lead to gaps in the knowledge of the new teachers that are trained. One such deficiency, suggested by Forlin and Chambers (2011), is that in a study of 228 participants, 93% of those surveyed

reported that they felt ill-prepared for inclusive practice based on their certification programs. The specific deficiency identified is the gap between theory and practice which manifested in a reported juxtaposition between the learning of newly certified teachers represented and the stated learning outcomes of the courses that they completed (Forlin & Chambers, 2011).

One view was that teacher education was overwhelmingly theoretical and had only put into words exactly what was known be to be needed in their practice. This corresponds to a similar idea from Florian and Black-Hawkins (2011), which stated that an array of changes are necessary to help teachers address the issue of inclusion in their daily practice, particularly a lack of practical experience. This practical experience, is found predominantly in retired and/or seasoned teachers who comprise a significant portion of the instructors in teacher education. As teachers largely teach how they were taught (Ainscow & Miles, 2008), these retired teachers impart their own tried and true methods of teaching, which may or may not be aligned with the best practices of the contemporary literature. Florian and Black-Hawkins state their view that a shift in thinking, from an approach that is transmission-model based that worked for many learners, to a flexible approach, or set of approaches that provide rich learning experiences for all learners. These models are not ingrained in seasoned teachers as the push for classroom inclusion is a recent idea. If teacher education programs are to develop the practical skills necessary to cultivate the skills of new teachers to apply inclusive practices in their classrooms, these programs could benefit from the most inclusive of active practitioners to model the inclusive practices for new teachers in the

program, as counterparts to retired teachers, whose were raised within the transmission and banking models of education.

New teachers were grateful for the opportunity and were happy to be teaching in classrooms, an opportunity seldom found outside of teacher education practicum, but consistently critiqued how they were being taught to be inclusive and student-centred, in largely inaccessible, teacher-centred methods of instruction possible. A consistent theme of the courses audited was the importance of being student-centred in teaching practice, in this way students are the focal point of the instruction and it makes the statement that they are the centre of the classroom. The syllabi of the selected courses referred to topics like accessible lesson content, avoiding transmission model instruction, giving authentic assessments, and ensuring that lessons were multimodal in order to appeal to a range of learning styles. In juxtaposition with this stated goal of the courses, new teachers reported whole-class lectures, easily evaluated assignments that did not require deep thinking, and single-mode lessons that they often felt went "right over their heads." New teachers in this study have illustrated their perception that they do not have many opportunities to develop their skills hands-on; rather they are repeatedly told that they must be inclusive in order to be good teachers, in an entirely exclusive teaching style not consistent with its own stated learning goals.

Participants were also critical of their ability to be inclusive in their teaching. Some participants discussed how their peers would only be inclusive when their advisor was observing them in practice. For that one day they would ensure that their lesson was sufficiently accessible to their students as to meet the criteria for their evaluation. It was suggested that this was an example of intellectual laziness or resistance to a foreign

concept that some were uncomfortable with and were instead clinging to what they knew. Some participants reported their peers teaching precisely how they were taught, as it was the only way they knew. Brackenreed (2011) suggests that inclusive practitioners will face stiff opposition from within the profession, from others who do not agree with inclusion or simply are unwilling to change how they teacher to benefit their students. It was suggested that having an opportunity to practice some inclusivity in a safe setting might encourage more teachers to use inclusive practices in their teaching.

Another topic of interest was how participants expressed their skepticism of educational buzzwords. Participants commented how they were being trained to namedrop some high-profile buzzwords in order to boost the profile of their teaching strategies. Such hot-topics included multiple intelligences, authentic assessment and most commonly 21st-century learning. Participants reacted to the 21st-century questions positively, but often commented in the associated open-ended or elaborating questions how they resented the educational community with the superficial exploration rather than thick integration of these principles. One such comment stood out as the participant commented that Howard Gardner's work on multiple intelligences is becoming a gimmick, minimizing its importance as a source of inclusion. In their terms, inclusion is a goal, not a catchphrase. Lambe and Bones (2006) state that the contradictions in teacher attitudes result in different applications of inclusive practice. Some for instance may do so superficially, in order to conform with their peers, and school societal pressures, without doing so as an integral part of their practice (Ainscow & Miles, 2008). These superficial applications are the cause of the new teacher frustrations within the context of the inclusive movement. The desire for inclusive practitioners to move forward with

progress and accommodation within the classroom is tempered by older practitioners with a thinly veiled contempt for change (Lambe & Bones, 2006).

Participants critiqued how these buzzwords were portrayed in their teacher education classes and how they seemed out of touch with modern society, similarly to the "old wine, new bottle" syndrome described by Lankshear and Knobel (2003). In one instance, 21st-century learning was presented as using a VCR in a class dedicated to 21st-century technology use. Such portrayals, in the statements of new teachers, did not recruit the interest of emerging teachers. Instead of explaining the importance, old is often sold as new, with the addition of a minor, inconsequential "new age" component that does not impact the connecting teaching practice. Participants reported how many inclusive practices are being reduced to headings on a page and titles on slides rather than something that they are being taught to utilize effectively. This is characteristic of the deficiency in type of supports for the development of inclusivity in the teacher education of many new teacher as described by Austin (2010). Effective teacher preparation should provide and require lessons of teacher educators to feature practical, intensive components that impel the proliferation of the most well-accepted models of inclusive teaching in educational literature (Austin, 2010). Hence, the teacher education programs with practical components would produce pre-service teachers who are trained in the best research-based practices as new teachers cannot be effectively trained in inclusive education in a single workshop, or class that only delivers the headlines, instead of richer, deeper, and intensively practical learning opportunities.

Firm belief in inclusion. Despite their criticism participants were heavily invested in becoming inclusive practitioners. They believed that being an effective

teacher is connected to being an inclusive one. Ainscow and Miles (2008) state that the emerging philosophies of teachers who have recently graduated from teacher education programs are a source of optimism. Themes such as collaboration and developing student aptitude with technology were often equated in importance with the subject matter that they are teaching. One particularly moving statement by a participant was explaining that "If children aren't learning how we teach, perhaps we should teach how they learn" (Int. 2, p. 4). Florian et al. (2010) state that though many inclusive practitioners are resistant to buzzwords as they dismiss them as fads, and crazes within the educational movement, they often take the parts they deem useful and integrate them as part of their practice.

Participants were asked for their philosophies of teaching, and all included centrally an inclusive component, most prominently how they wanted to provide a positive, safe space where students of all learner types could be accommodated and accepted. There was repeated statement that many of the ideas mentioned in teacher education were refinements of ideas they already had. Some of the terminology was not in their vocabulary, but the ideas were already in their teaching arsenal. A central part of developing inclusive practice is new teachers recognizing that they already know the bulk of what they need to successfully accommodate their students, largely the remainder is a unifying framework (Florian et al., 2010).

Implications

The results of this study have numerous connections to the practices of current teacher education, the existing literature, and as a source of ideas for future research. Firstly, this study identified the current perceptions of new teachers and how they connect to their capacities for inclusive practice. The study also examined how new teacher

philosophies demonstrated alignment with inclusive pedagogies. It also identified what new teachers need to develop to have inclusive practice. The following are the connections between the study's findings and the field of education at large.

Implications for practice. The perceived juxtaposition between the practices of teacher education and the goals of the courses need to be addressed. The first is the separation of theory and praxis in the courses themselves, while the relevant content is fresh in the minds of students. If a teacher education class has just discussed Bloom's taxonomy, it is an ideal opportunity to try and use it in a micro-teaching and have other students critique that potential usage. One participant commented that "When you're teaching a concept to the new teacher candidates; you actually go through what that looks like in practice rather than just spitting out theoretical constructs. I think that would be more helpful" (Int. 4, p. 6). In this way students would have the opportunity to apply their knowledge, and create something, in the same way that they are trained to do so in their classes. Students that see this use first-hand may in fact use it often, becoming more inclusive practitioners.

The predominant described experience of new teachers in this study features an artificial separation between the learning and a chance to implement it. The quick succession of concepts described superficially in teacher education was suggested by participants with being linked to the consistent alienation with buzzwords that participants describe feeling. New teachers, as surveyed, demonstrate resistance to the superficial statement and use of buzzwords and vigorously disapprove of the way that some of their peers carry on teaching precisely as they were taught. This implies that new teachers recognize that inclusivity is central to effective practice and that their own drive

to be inclusive allows them to see the lack of it in others.

Quite simply, teacher education could benefit greatly from providing opportunities for new teachers to practice the concepts new to them, in order to become more comfortable with their use. One such setting suggested by a participant in their member check was a rotary, safe-space simulation model, where participants would experience several different educational situations and have the opportunity to apply their learning in different contexts, thus fusing theory and practice. This might take the form of a course on inclusive practices in education with its own integrated practical component. Such a course might elect to focus on a selection of inclusive practices and illustrate how they might be effective in developing a positive, safe, and accessible learning space. This course would prepare students by illustrating how inclusive practices might connect with one another and enhance student learning by providing an accessible atmosphere where all students might learn.

For instance, it might illustrate how connecting a multimodal lesson, where students are allowed to bring in their past learning to a task where students are given the opportunity to design a solution to a meaningful, real-world problem using their past and current learning. In the scenario of teaching a biology class, this might take the form of tasking students with an environmental survey to evaluate the health of a local ecosystem using the terms and concepts of the ecosystems unit that they are learning. This use of framed-narrative, case study, and the fusing of theory and practice, a term called praxis, would be an ideal way of making inclusive practice relevant, engaging, and most importantly transformative. Participants of this study, commented how they wanted a course that allowed them to explore inclusivity, and invited them to apply their learning

to real situations they might encounter, rather than bombarding them with ideas and exploring few of them in detail, as repeatedly reported in the questionnaire and interview. In this way, the identified needs of new teachers in order to develop their inclusivity might be addressed in a practical, hands on way that provides an opportunity to develop as inclusive practitioners to the benefit of their future students.

Implications for theory. UDL is presented as an all-encompassing guideline for effective, inclusive practice leading to a resourceful, strategic, and knowledgeable generation of students. Participants generally liked the guidelines and often spoke about how they already use their suggestions in their practice, while others are noble goals to pursue. Participants also felt that much of the time, they lacked the ability to use them due to time constraints, or a lack of training dating back to their teacher education years. Sharma et al. (2008) reveal that the constraints of time, and lack of hands-on training interferes with the development of inclusive lessons and materials. Furthermore, some teachers simply do not believe that inclusive practice is worth their time, and continue to practice as they were taught, with a high-proportion continuing to instruct in a fashion aligned with transmission-model education.

New teachers overwhelmingly looked favourably on the CAST UDL guidelines and looked to them as a source for ideas to improve upon their inclusivity. A common comment was how the ideas of UDL were not unique, or revolutionary, the prevailing trend was that UDL was a collection of other good ideas, neatly packaged for a dedicated practitioner to try and implement. In this way, UDL was nothing new, but an excellent reference for teachers and instructors looking for ideas to improve their practice. The integration of UDL into practice was proposed by Davies, Schelly, and Spooner (2013) to

be best implemented in the planning stages of a course or unit, as it could effectively be used as a checklist for whether the course or unit would be accessible.

UDL did however receive criticism as being merely a reference and not a true resource as it suggests goals, with no direction on how to meet them. Participants expressed frustration with how the resource was like an assignment with no rubric; they did not know what success looked like, or how to get it. As a reference, they thought it would be best used as a starting point for other self-directed research in how they might improve, a conduit for other refinement to their practice. Participants might use UDL as a tool for starting reflexivity and self-evaluating their own practice, to see where they might devote additional time to becoming more inclusive practitioners. Many participants reported being intimidated by the investment of time, that developing inclusive instruction is perceived to take. Some participants reported that they felt that UDL was not practical in current classroom settings as teachers are busy enough merely managing behaviour and maintaining focus, never mind, adding multiple modes of assignments, time for developing executive function, and tailoring practice to each and every student.

In contrast to these views, Basham and Marino (2013) describe how in their study, UDL-aligned teaching results in a reduction of time spent managing classroom behaviour. The discrepancy is potentially a source of concern, as many of the surveyed teachers may be intimidated enough by the early investment of time to develop UDL-aligned courses, such that they never experience the pay-off of their earlier efforts. In summary, new teachers posited that UDL is a suitable starting point for self-directed learning of new teachers seeking to add more tools to their toolbox.

Implications of limitations and further research. The results and conclusions

of this study illustrate the perceptions of new teachers, however, it also identifies opportunities for studies and research into questions that remain unanswered. These are largely to do with the limitations of the study, predominantly the modest sample size. A larger sample size might have had the power to do deeper statistical analyses to identify differences between demographic groups, and within teachables to identify patterns for consideration. A larger investigation would be able to include the courses of more than one University, or perhaps all of the potential routes for all teaching certification age ranges from primary to senior, instead of only intermediate and senior.

Additional research into the use of buzzwords would be a natural next step, as participants identified their frustrations with their continued use and the proliferation of self-identified superficial inclusive practice. A study that would ask teachers to identify terms that are problematic or catchphrases that they find empty of meaning and why. It would be of great use to the field should these perceptions and topical strategies be explored. Similarly, it would be of great use to the field to quantify the exact efficacy of teacher education using a pre-test/post-test design of new teachers before and after teacher education in order to determine the change in attitudes, perceptions, and knowledge that would take place in teacher education. Such an experimental design would also serve as a suitable basis for evaluating the efficacy of this study's recommendations and findings for improving the inclusive development of teacher education.

As identified by the support-type ranking question on the questionnaire, there are demonstrable preferences of new teachers for the types of supports that they might find helpful. An investigation of these support types might reveal more detail about what

types of resources should be priorities for development for the next generation of teacher.

Conclusions and Final Word

Inclusive practices help the range of learner types engage with the material at hand leading to safe, accessible learning spaces that help students become engaged with the material at hand. A framework of inclusive pedagogies that happen to tie-in to UDL includes Bloom's taxonomy, metacognition, design thinking, multimodal learning, and 21st-century learning. The UDL guidelines can serve as an inclusive framework that integrates several other inclusive practices and strategies into one reference that can be used for effecting change in one's teaching practices to make them more inclusive.

New teachers from the intermediate/senior teacher education program from the sampled Ontario university are proficient with 21st-century learning, multimodal learning, and metacognition and are fond of UDL guidelines. Their preparation is not as complete as it could be with design thinking and Bloom's taxonomy, despite a continued emphasis in all their courses. New teachers are largely keen to be inclusive but not all those who graduate from teacher education are keen to be inclusive; some continue to teach exactly as they were taught in their subject. The new teachers who are driven to be inclusive face several impediments to developing more fully in teacher education.

The first of these identified impediments was a fundamental separation between practice and theory. New teachers often reported that they would be lectured at about being inclusive and how inclusion was a best practice, as well as several concepts relating to inclusion, but would never be immediately given an opportunity for active experimentation and exploration of the inclusive strategy at hand. This might be addressed with a series of simulations that act as living case studies. These case studies

would give teacher candidates opportunities to implement inclusive strategies in a safe space prior to their high-pressure, high-stakes experiences in their practicum. One such vehicle for providing these opportunities would be an inclusive practices course that would be structured around experiential case-studies that follow lessons on new inclusivity practices.

Another challenge is the prevalence of buzzwords in the teacher education program, which participants identify as diminishing the efforts of inclusivity by marginalizing the value of inclusive strategies by reducing them to fads and crazes to be namedropped in interviews for personal benefit. This might be achieved by better connecting practice to theory as previously mentioned, but also with a change in culture in teacher education that would add opportunities to critically engage with these ideas and experiment with them in a safe space. An infusion of successful, active teachers as cohort instructors in tandem with the experience of retired teachers would provide an ideal balance of both the connections to current boards needed to establish practicum partnerships, and the in-class savvy to be inclusive through technology, instructional design, and modern topics from the literature. This shift in paradigm in teacher education would lead to more modern designs of class instructions as well as more modern, peer-reviewed resources as opposed to the opinion of a few retired practitioners.

Additional topics for study were elucidated in this study. The first of these new topics for study are precise quantifications of the knowledge for each inclusive strategy, rather than merely the perceptions of the new teachers regarding the pedagogies. This might be achieved through a questionnaire in an experimental design. Another related and as-of-yet unexplored topic is a study to precisely quantify the efficacy of teacher

education regarding inclusion utilizing perhaps a pre-test/post-test design. This will specifically identify areas in need of refinement as opposed to the grassroots approach of this study. Lastly, directly extending the results of this study, a quasi-experimental design that would examine and quantify the efficacy of this study's recommended changes of the teacher education program and determine the feasibility and benefit to the cohort of new teachers.

This study has laid the groundwork for other studies to explore the efficaciousness of teacher education. It also looked at the ability of teacher education to develop inclusive practitioners. It did this by gleaning deep perceptions and predisposition to inclusivity from the current and recently graduated teacher candidates in order to develop a needs assessment for teacher education to be more productive, effective, and more positively contribute to the skills of this generation of teachers. It will serve as a foundation for other research to contribute to the development of inclusive teachers by building upon the identified views, opinions, and perceptions. The study has illustrated what is done well and what is in need of alteration in order to continue the improvement in the development of teachers in this province.

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Appendix A

New Teacher Perceptions Questionnaire

Q1.1 The following survey questionnaire is for the purposes of confidentially gathering information about teacher perceptions of Inclusive pedagogies and practices. All answers will be stored securely electronically under encryption and password protection. Please answer the following questions honestly and to the best of your ability. Point form notes are fine for the short answer questions. Your time, efforts, and energy are appreciated. I'm trying to make Ontario Schools a more accessible place and you have taken time to help me. You'll have an opportunity to enter in an email address at a later point for entry into the prize draws. The email addresses will be kept separately, protected by a password and will not connect to your questionnaire submission. Available below are the links to the Informed Consent and Letter of Invitation for your viewing.

Q1.2 With which gender do you identify?

- ❍ Male (1)
- ❍ Female (2)
- ❍ Other (Please Specify) (3) _____

Q1.3 What is your current age?

Q1.4 What are your teachable subjects? (Select all that apply)

- ❑ English/ Language Arts (1)
- ❑ Mathematics (2)
- ❑ Dramatic Arts (3)
- ❑ Visual Arts (4)
- ❑ Music (5)
- ❑ French (6)
- ❑ Geography (7)
- ❑ History (8)
- ❑ Biology (9)
- ❑ Physics (10)
- ❑ Chemistry (11)
- ❑ General Science (12)
- ❑ Social Studies (13)
- ❑ Technological Education (14)
- ❑ Other: (Please Specify) (15) _____

Q1.5 What type of teacher education program are you completing or have you completed?

- ❍ Consecutive (Ontario) (1)
- ❍ Concurrent (Ontario) (2)
- ❍ Consecutive (Outside Ontario) (3)
- ❍ Concurrent (Outside Ontario) (4)
- ❍ Other (Please Specify) (5) _____

Q2.1 What is your level of knowledge about 21st century learning (including differentiation and multiple intelligences among other things)?
- ❍ Very Poor (1)
- ❍ Poor (2)
- ❍ Fair (3)
- ❍ Good (4)
- ❍ Very Good (5)

Q2.2 Do you use activities/strategies related to the concept of 21st century learning (including differentiation and multiple intelligences among other things)?
- ❍ Yes (1)
- ❍ No (2)

Answer If Do you use activities/strategies related to the concept of differentiated instruction? Yes Is Selected

Q2.3 What are some of the activities you use related to the concept of 21st century learning (including differentiation and multiple intelligences among other things)? (Point form is fine.)

Q2.4 How comfortable are you in applying your knowledge of 21st century learning (including differentiation and multiple intelligences among other things) in your teaching practice?
- ❍ Very uncomfortable (1)
- ❍ Uncomfortable (2)
- ❍ Neutral (3)
- ❍ Comfortable (4)
- ❍ Very Comfortable (5)

Q3.1 What is your level of knowledge about Bloom's Taxonomy?
- ❍ Very Poor (1)
- ❍ Poor (2)
- ❍ Neutral (3)
- ❍ Good (4)
- ❍ Very Good (5)

Q3.2 Do you use activities/strategies related to the concept of Bloom's Taxonomy?
- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To How comfortable are you in applying y...

Answer If Yes Is Selected

Q3.3 What are some of the activities/strategies that you use relating to the concept of Bloom's Taxonomy? (Point form is fine.)

Q3.4 How comfortable are you in applying your knowledge of Bloom's Taxonomy in your teaching practice?
- ❍ Very Uncomfortable (1)
- ❍ Uncomfortable (2)
- ❍ Neutral (3)
- ❍ Comfortable (4)
- ❍ Very Comfortable (5)

Q3.5 What is your level of knowledge about metacognition?
- ❍ Very Poor (1)
- ❍ Poor (2)
- ❍ Neutral (3)
- ❍ Good (4)
- ❍ Very Good (5)

Q3.6 Do you use activities/strategies related to the concept of metacognition?
- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To How comfortable are you in applying y...

Answer If Do you use activities/strategies related to the concept of Metacognition? Yes Is Selected

Q3.7 What are some of the activities/strategies that you use relating to metacognition? (Point form is fine.)

Q3.8 How comfortable are you in applying your knowledge of metacognition in your teaching practice?
- ❍ Very Uncomfortable (1)
- ❍ Uncomfortable (2)
- ❍ Neutral (3)
- ❍ Comfortable (4)
- ❍ Very Comfortable (5)

Q4.1 What is your level of knowledge about design thinking (students applying knowledge from a lesson to creating or designing something?
- ❍ Very poor (1)
- ❍ Poor (2)
- ❍ Fair (3)
- ❍ Good (4)
- ❍ Very Good (5)

Q4.2 Do you use activities related to the concept of design thinking?
- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To How comfortable are you in applying y...

Answer If Do you use activities related to the concept of design thinking? Yes Is Selected

Q4.3 What are some of the activities/strategies that you use related to design thinking? (Point form is fine)

Q4.4 How comfortable are you in applying your knowledge of design thinking in your teaching practice?

- ❍ Very Uncomfortable (1)
- ❍ Uncomfortable (2)
- ❍ Neutral (3)
- ❍ Comfortable (4)
- ❍ Very Comfortable (5)

Q4.5 What is your level of knowledge about multimodal learning (utilizing multiple media types to support student learning)?

- ❍ Very poor (1)
- ❍ Poor (2)
- ❍ Fair (3)
- ❍ Good (4)
- ❍ Very Good (5)

Q4.6 Do you use activities related to the concept of multimodal learning?

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To How comfortable are you in applying y...

Answer If Do you use activities related to the concept of multimodal learning? Yes Is Selected

Q4.7 What are some of the activities/strategies that you use related to multimodal learning? (Point form is fine)

Q4.8 How comfortable are you in applying your knowledge of multimodal learning in your teaching practice?

- ❍ Very Uncomfortable (1)
- ❍ Uncomfortable (2)
- ❍ Neutral (3)
- ❍ Comfortable (4)
- ❍ Very Comfortable (5)

Q5.2 What is your level of knowledge about Universal Design for Learning? (UDL) Please refer to the resource above.

- ❍ Very Poor (1)
- ❍ Poor (2)
- ❍ Fair (3)
- ❍ Good (4)
- ❍ Very Good (5)

Q5.3 How comfortable are you in implementing UDL principles in your teaching practice?

- ❍ Very Uncomfortable (1)
- ❍ Uncomfortable (2)
- ❍ Neutral (3)
- ❍ Comfortable (4)
- ❍ Very Comfortable (5)

Q5.4 To what degree have you implemented Universal Design for Learning principles in your teaching practice?

- ❍ Never (1)
- ❍ Rarely (2)
- ❍ Sometimes (3)
- ❍ Often (4)
- ❍ All of the Time (5)

Answer If To what degree have you implemented Universal Design for Learning principles in your teaching practice? Never Is Not Selected

Q5.5 If you have implemented Universal Design for Learning principles, which ones and why? (Point form is fine.)

Q5.6 Do you have any further information or thoughts on Universal Design for Learning principles?

Q6.1 How often do you provide options for perception in your teaching practice? (e.g., customize the display of information, provide alternatives for auditory information, alternatives for visual information)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for perception (1)	❍	❍	❍	❍	❍

Q6.2 How often do you provide options for language, mathematical expressions, and symbol representation in your teaching practice? (e.g., clarify vocabulary and symbols, clarify syntax and structure, foster decoding of text, mathematical notation, or symbols, promote understanding across languages, illustrate through multiple media)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for representation (1)	❍	❍	❍	❍	❍

Q6.3 How often do you provide options for comprehension in your teaching practice? (e.g., activate or supply background knowledge, highlight patterns, critical features, big ideas, and relationships, guide information processing, visualization, and manipulation, maximize transference and generalization)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for comprehension (1)	❍	❍	❍	❍	❍

Q6.4 Do you believe the previous three principles of UDL (options for perception, options for representation, and options for comprehension) provide a means for resourceful, knowledgeable learners?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Providing options for Perception (1)	❍	❍	❍	❍	❍
Providing options for Representation (2)	❍	❍	❍	❍	❍
Providing options for Comprehension (3)	❍	❍	❍	❍	❍

Q6.5 What in particular makes you feel this way about the previous three principles? (Point form is fine.)

Q7.1 How often do you provide options for physical action in your teaching practice? (e.g., vary the methods for response and navigation and optimize access to tools and assistive technologies)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for physical action (1)	❍	❍	❍	❍	❍

Q7.2 How often do you provide options for expression and communication in your teaching practice? (e.g., use multiple media for communication, use multiple tools for construction and composition, build fluencies with graduated levels of support for practice and performance)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for expression and communication (1)	❍	❍	❍	❍	❍

Q7.3 How often do you provide options for executive function in your teaching practice? (e.g., guide appropriate goal-setting, support planning and strategy development, facilitate managing information and resources and enhance capacity for monitoring progress)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for executive function (1)	❍	❍	❍	❍	❍

Q7.4 Do you believe the previous three principles of multiple means of action and expression (providing options for physical action, expression & communication and executive function) provides a means for strategic, goal-directed learners?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Provide options for physical action (1)	❍	❍	❍	❍	❍
Provide options for expression and communication (2)	❍	❍	❍	❍	❍
Provide options for executive function (3)	❍	❍	❍	❍	❍

Q7.5 What in particular makes you feel this way about the previous three principles?

Q8.1 How often do you provide options for recruiting interest in your teaching practice? (e.g., optimize individual choice and autonomy, optimize relevance, value, and authenticity, minimize threats and distractions)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for recruiting interest (1)	❍	❍	❍	❍	❍

Q8.2 How often do you provide options for sustaining effort and persistence in your teaching practice? (e.g., heighten salience of goals and objectives, vary demands and resources to optimize challenge, foster collaboration and community, increase mastery-oriented feedback)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for sustaining effort and persistence (1)	❍	❍	❍	❍	❍

Q8.3 How often do you provide options for self-regulation in your teaching practice? (e.g., promote expectations and beliefs that optimize motivation, facilitate personal coping skills and strategies and develop self-assessment and reflection)

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	All of the Time (5)
Provide options for self-regulation (1)	❍	❍	❍	❍	❍

Q8.4 Do you believe the previous three principles of UDL provide a means for purposeful, motivated learners?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Provide options for recruiting interest (1)	❍	❍	❍	❍	❍
Provide options for sustaining effort and persistence (2)	❍	❍	❍	❍	❍
Provide options for self-regulation (3)	❍	❍	❍	❍	❍

Q8.5 What in particular makes you feel this way about the previous three principles? (Point form is fine.)

Q9.1 Do you believe that the Universal Design for Learning guiding principles are effective practices?

❍ Strongly Disagree (1)
❍ Disagree (2)
❍ Neither Agree nor Disagree (3)
❍ Agree (4)
❍ Strongly Agree (5)

Q9.2 Why do you feel this way?

Q9.3 Are UDL principles realistic goals for teachers in classrooms to implement?

❍ Strongly Disagree (1)
❍ Disagree (2)
❍ Neither Agree nor Disagree (3)
❍ Agree (4)
❍ Strongly Agree (5)

Q9.4 Why do you feel this way?

Q9.5 What supports (e.g.,, curricular aids, professional development, or mentoring) would you find most helpful in further implementing the UDL principles in your teaching practice? Please rank the following ideas.

	Poor (1)	Fair (2)	Good (3)	Very Good (4)	Excellent (5)
Curricular Documents (1)	❍	❍	❍	❍	❍
Professional Development (2)	❍	❍	❍	❍	❍
Additional time in Teacher Education (3)	❍	❍	❍	❍	❍
Additional time in classroom practicum during Teacher Education (4)	❍	❍	❍	❍	❍
Further involvement of Special Education Specialists in Schools (5)	❍	❍	❍	❍	❍

Q9.6 What other supports not listed above would you find useful in making your classroom more inclusive? (Point form is fine.)

Q9.7 Given your unique experience in your Teacher Education program, what is your degree of agreement with the following statements?

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I have all the tools to be inclusive in my practice (1)	❍	❍	❍	❍	❍
I have all the tools to align my practice with 21st century learning (2)	❍	❍	❍	❍	❍
I am motivated to stay up-to-date with new studies in the learning sciences (3)	❍	❍	❍	❍	❍
I have all the tools and strategies I need to encourage collaboration and teamwork among students (4)	❍	❍	❍	❍	❍
I feel ready to provide students with opportunities to utilize their past learning. (5)	❍	❍	❍	❍	❍
I feel ready to provide options that optimize individual student learning (6)	❍	❍	❍	❍	❍
I am ready to teach the diverse range of students of Ontario. (7)	❍	❍	❍	❍	❍

Q9.8 Do you have any concluding comments, suggestions for improvement, or questions you would like to write below?

Q9.9 Would you be open to participating in a 20 -30 minute individual interview on this topic? If yes, please enter an email with which you can be contacted.

❍ Yes (1) _____

❍ No (2)

Appendix B

Inclusive Pedagogy Interview Question Bank

Semi Structured Interview – The questions asked will depend on the answer in the questionnaire.

If corresponding questionnaire response was affirmative then one or more of the following questions will be asked at the interviewer's discretion.

Inclusive Pedagogies

1. What sort of inclusive pedagogies fit with your teaching strategies?
2. Do you utilize metacognition strategies in your practice? If yes, how do you utilize these frameworks?
3. Do you utilize Bloom's Taxonomy in your practice? If yes, how do you utilize these frameworks?
4. Do you utilize design thinking in your practice? If yes, how do you utilize these frameworks?
5. Do you utilize multiple modes of teaching in your practice? If yes, how do you utilize these frameworks?
6. Do you utilize practices consistent with 21st century learning in your practice? If yes, how do you utilize these frameworks?
7. Do you utilize multiple intelligences in your practice? If yes, how do you utilize these frameworks?

Perception

8. In what ways are you inclusive in your teaching?
9. What methods do you advocate for in your classroom at present or in future?
10. What do you feel is the most inclusive lesson, microteaching, or teachable moment you have ever experienced? Which guidelines do you feel apply?
11. What can you do to make learning accessible for your students?
12. What makes you think that UDL Principles are effective or not?

Preparedness

13. What tools would you find helpful in making your practice more inclusive?
14. Do you feel ready to teach the students of Ontario? To what extent do you credit teacher's college for your readiness?
15. What do you wish had received more focus in teacher's college if anything?

Appendix C

Course Audit

<table>
<tr><th colspan="2">Assessment
Concurrent- EDUC 4P19 Consecutive- EDUC 8P04 Tech- EDUC 8P05</th></tr>
<tr><th>Course Learning</th><th>Connections to Inclusive Practice</th></tr>
<tr><td>Know:
Overall Expectations
• Assessment OF, FOR, and AS learning
• How to align curriculum to enhance student learning
• Assessment can be a valuable tool to:
o evaluate student work
o act as a diagnostic tool to determine what students need to know enhance student learning</td><td>These course expectations relate to building skills in:
Metacognition
• strategic thinking
• planning ahead
• backwards design
Bloom’s Taxonomy
• balanced instruction
• applying expectations to student learning
Design Thinking
• shaping your practice to fit the class in front of you
• adapting assessment to be educative for students
• flexibility within frameworks of curricula and instruction
21st Century Learning
• flexibility to appeal to multiple intelligences</td></tr>
<tr><td>Do:
• Create an aligned curriculum with an appropriate summative task and ongoing instructional activities/assessments that enable students to succeed at demonstrating their learning
• Demonstrate critical literacy by critiquing assessment tools
• Apply Ontario Ministry of Education policies on assessment while creating a discipline-based unit</td><td>These course expectations relate to building skills in:
Metacognition
• strategic thinking
• planning ahead
• backwards design
• decision-making and executive function
Bloom’s Taxonomy
– balanced instruction
– applying expectations to student learning
– lessons should appeal to all learning domains
Design Thinking</td></tr>
</table>

<table>
<tr>
<td>

- Critique and create appropriate assessment tasks considering the KDB and using a variety of OF, FOR and AS learning assessments
- Facilitate authentic assessments
- Facilitate assessments that foster 21st century learning

</td>
<td>

– shaping your practice to fit the class in front of you
– adapting assessment to be educative for students
– flexibility within frameworks of curricula and instruction
– higher-order cognition
– experiencing the process of meaning-making
Multimodality
– authentic assessments
21st Century Learning
– flexibility to appeal to multiple intelligences
– adaptive instruction to cater to a variety of learners

</td>
</tr>
<tr>
<td colspan="2">

Assessment of Learning

Active Course Participation

In this assignment, you are expected to share you experience with any aspect of the assessment process.

- Marking or grading (how did the grading/marking in the past affect your learning, motivation, attitudes etc.)
- Self-assessment: Have you ever been involved in self-assessment? Did your teacher ask you to comment on your work?
- Peer-assessment: Have you ever provided your peer with the comments on her/his work?
- In your experience as a sport coach, camp counsellor, or as a teacher, have you ever assessed/ evaluated your students' progress in any activity?
- Feedback from your teachers

Assessment Story

Tell the story of your best experience with assessment (any context).

In this assignment, you are expected to share your experience with any aspect of the assessment process. Some suggestions:

- Marking or grading (how did the grading/marking in the past affected you learning, motivation, attitudes etc.)
- Self-assessment: Have you ever been involved in self-assessment? Did your teacher ask you to comment on your work?

</td>
</tr>
</table>

- Peer-assessment: Have you ever provided your peer with the comments on her/his work?
- In your experience as a sport coach or a camp counsellor or as a teacher, have you ever assessed/ evaluated your students' progress in any activity?
- Feedback from your teachers
- Any other topic that relates to assessment

Curriculum Document Front Matter Assignment

- What do those two documents say about their specific subjects?
- What content does the Ministry consider important in that subject?
- What skills does the Ministry consider important in that subject?
- What values are being implicitly taught in each subject?
- What does each document say about assessing the subject**?**

Self-Assessment

Create/choose assessment criteria you will use to assess your own performance in this course. Make sure you have multiple indicators of your success. Outline why you chose the criteria you did (rationale). Keep in mind you will ONLY be assessing yourself using the criteria you outline in the beginning.

In this part you need to think what will make you successful as a student in this class (think how would you define success…have you ever been successful in one or more of your courses? How did you contribute to that success?). For instance, read the outline for participation. What is it that you need to do in order to be a successful participant in this course? That is your criteria. Think about your work in the group? How will you be successful as a group member? (These are only two examples; you will need to think about multiple indicators).

Critique your professional growth according to your criteria. How have you grown? What do you still need to learn? How will you learn it? Assess your overall performance in the course based on the criteria you outlined at the beginning of the course.

Interdisciplinary Curriculum

In your groups, you will develop a subject-based curriculum unit using backward design principles. You will begin with the expectations at your selected grade level, and integrate with 3 grades two grades down, one grade up. Using a backwards planning model for Interdisciplinary curriculum, you will do a:

- Vertical Scan and Cluster
- Theme for the Unit
- KDB Chart and Umbrella
- Exploratory Web

<table>
<tr><td colspan="4">• Culminating Activity + Assessment Tools</td></tr>
<tr><td colspan="2">Be:
• Assessment literate
• Knowledgeable of best practices in education
• Reflective practitioner capable of applying curriculum to practice in innovative ways and meet the needs of 21st century students
• Strategic in selecting and crafting assessment</td><td colspan="2">These course expectations relate to building skills in:
Metacognition
• strategic thinking
• planning ahead
• backwards design
• decision-making and executive function
Bloom’s Taxonomy
• balanced instruction
• applying expectations to student learning
• lessons should appeal to all learning domains
Design Thinking
• shaping your practice to fit the class in front of you
• adapting assessment to be educative for students
• flexibility within frameworks of curricula and instruction
• higher-order cognition
• experiencing the process of meaning-making
21st Century Learning
• flexibility to appeal to multiple intelligences
• adaptive instruction to cater to a variety of learners
• new literacies
• differentiation
Multimodality
• reduced limits on acceptable forms of expression</td></tr>
<tr><td>Concepts Covered</td><td>Relates to concepts:</td><td>In survey section(s)</td><td>Interview Question(s)</td></tr>
<tr><td>Philosophy of Assessment</td><td>Metacognition
Bloom’s Taxonomy</td><td>Learning Sciences
Differentiation
Design Thinking</td><td>1, 2, 3, 5, 8, 10</td></tr>
</table>

	Multimodality		
Backwards design	Metacognition Bloom's Taxonomy Design Thinking 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 6, 8, 10
Know, Do, Be	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	1, 2,3,6
Vertical Scan and Cluster	Metacognition Bloom's Taxonomy Design Thinking	Learning Sciences Design Thinking	2,3,4
Basics of Assessment	Bloom's Taxonomy 21st Century Learning	Learning Sciences Differentiation	1, 2, 7
Assessment OF Learning	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 10
KDB Chart and Umbrella	Bloom's Taxonomy Metacognition Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 10
Assessment FOR Learning	Metacognition Bloom's Taxonomy	Learning Sciences	1, 2, 3, 8, 10

Assessment AS Learning	Metacognition 21st century Learning	Learning Sciences Differentiation	1, 2, 7, 8, 10
Creating a Culminating Assessment Task	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Assessing the BE	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 10
Instructional Activities	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15
Assessment tools	Metacognition Bloom's Taxonomy Design Thinking	Learning Sciences Design Thinking	1, 2, 3, 4, 5, 8, 9, 11, 15
Differentiated Assessment	Bloom's Taxonomy 21st century learning Multimodality	Learning Sciences Differentiation	1, 2, 3, 8, 9, 10, 11, 15
Personalized Assessment	Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Design Thinking Differentiation	1, 3, 5, 7, 8, 9, 11

Effective Feedback	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	1, 3, 5, 7, 8, 9, 11, 13, 14
Evaluation of Learning	Metacognition Bloom's Taxonomy	Learning Sciences	2, 3, 8, 10, 11, 12
Moderated Marking	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 3, 5, 7, 8, 9, 11, 13, 14
Unit Conferencing	Metacognition Bloom's Taxonomy Design Thinking	Learning Sciences Design Thinking	2, 3, 4 8, 9, 11, 12, 13, 14, 15
Reflection on Assessment	Metacognition Bloom's Taxonomy	Learning Sciences	1, 2, 3, 8, 10, 15

Experience and Reflexivity

This course is the knot at the end of a very long series of threads. It to me, at least, ties together the previous learning in assessment combined with the experiences of placement and in-class experience, be it university facilitated or volunteerism. Though I did not realize it at the time this course utilizes ideas from a range of inclusive pedagogies including: studies in metacognition, the Taxonomy of Learning Objectives, design thinking, multimodality, and 21st century learning. In particular a trend in the course is an emphasis on ensuring that aspects of 21st century learning such as the new literacies, critical thinking, affinity for technology, and competency in a variety of modalities of expression.

The course is one sentence could be explained as; the right assessment will promote and facilitate student learning, rather than confirm if it happened at all.

Assignment Reflexivity

Active Course Participation

Participation in this course took the form of class engagement in debates, discussions and how you worked in groups. For the projects. This assessment demonstrated the value of collaboration as well as metacognition. Certain learning styles simply work more effectively in certain situations. The mixture of activities,

group work, design tasks and individual work offered a broad base of ways to potentially engage with the material at hand. This diverse practice in instruction could serve as a model for the future teachers in the class.

Assessment Story

This task brings together assessment with student reflexivity in order to get students to think about how assessment made them feel. In particular, it showcases the best forms of assessment to them. Potentially, illustrating how effective assessment is a tool for the learning of students. This assignment is another exercise in metacognition, as well as bringing in Bloom's Taxonomy, design thinking and 21st century learning. This activity could model how to be inclusive in the assessment chosen by the future teacher. The presence or absence of multimodality or 21st century learning could be an eye-opening experience as it was for me.

Curriculum Document Front Matter Assignment

This assignment provides an opportunity for the students in the class to see how the expectations in the curriculum are designed to be implemented in instruction to develop skills as well as dictate what content should be taught. This activity is an exercise in utilizing the curriculum of the chosen subject to shape instruction while also factoring in the needs of students. This assignment makes reference to concepts related to metacognition, 21st century learning, multimodality, Bloom's taxonomy and design thinking.

Self-Assessment

This reflective exercise is designed to give students an opportunity to gather their thoughts about their achievement in the course. Students are given the opportunity to state how they felt about their participation and how they contributed to the class in general. Students are invited to discuss what made them successful in the course or vice-versa. This exercise strongly relates to concepts in metacognition.

Interdisciplinary Curriculum

This was the culminating task in my year and at least to me, it was the apex of the course. All the concepts in the course fell into place. Students are tasked with building a unit from the ground up for their major subject. Students were encouraged to apply the learning from their practicum and the learning from the course to make something they could use in the teaching practice. Students were required to include and account for concepts relevant to metacognition, design thinking, Bloom's Taxonomy, 21st century learning, and multimodality.

Instructional Strategies Concurrent- EDUC 8F11 Consecutive- EDUC 8D10 Tech- EDUC 8D11	
Course Learning	**Connections to Inclusive Practice**
Know: Overall Expectations • instructional strategies and contexts across curriculum areas • current topics of teacher interest (provincially and beyond) • methods of self-reflective professional practice	These course expectations relate to building skills in: **Metacognition** – strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction – lessons should appeal to all learning domains **Multimodality** – authentic assessments – reduced limits on acceptable forms of expression – richness of perspectives **21st century learning** – critical thinking – gleaning information from narratives – differentiation – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms – understanding that students are mosaics of intelligences – collaborative work exposes students to other intelligences
Do: • develop a repertoire of teaching strategies and techniques • make connections between course work and practicum experiences; • examine their own beliefs about teaching and learning, and understand how	These course expectations relate to building skills in: **Metacognition** – strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction – applying expectations to student learning **Design Thinking** – shaping your practice to fit the class in front of you – adapting assessment to be educative for students

teacher beliefs shape classroom practice • develop the practice of critical reflection to enhance professional growth • become acquainted with professional resources useful to teachers	– providing opportunities for expression – challenge driven by choice – flexibility within frameworks of curricula and instruction – conducive to engagement and personal investment – higher-order cognition – experiencing the process of meaning-making **Multimodality** – authentic assessments – reduced limits on acceptable forms of expression – graphical depictions of information – heavy investment in multimedia depictions – exposure to outside the norm modalities of expression **21st century learning** – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms – understanding that students are mosaics of intelligences – collaborative work exposes students to other intelligences

Instructional Strategies Seminar

In small groups, teacher candidates will develop and present a full-class seminar to explore specific teaching strategies including:

- Differentiated instruction
- Structuring classroom questioning
- Collaborative learning strategies
- Multiple literacies
- Use of new technologies

Take-Home Exam

The purpose of this assignment is for teacher candidates to analyze and reflect on various school-based conflict scenarios from the perspectives of three involved people.

Unit Plan

In pairs or groups of three, teacher candidates will prepare a 5-7 day unit plan for a subject area and grade/academic level of their choice. The unit plans will become shared resources for all 8F11 class members.

Be: • Knowledgeable of current topics in learning sciences • Understanding of the needs of learners • An effective instructor • Skilled in classroom management • A reflective practitioner • Capable of assembling and executing plans	These course expectations relate to building skills in: **Metacognition** – strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction – lessons should appeal to all learning domains **Design Thinking** – shaping your practice to fit the class in front of you – adapting assessment to be educative for students – providing opportunities for expression – challenge driven by choice – flexibility within frameworks of curricula and instruction – conducive to engagement and personal investment – higher-order cognition – experiencing the process of meaning-making **Multimodality** – authentic assessments – reduced limits on acceptable forms of expression – richness of perspectives – graphical depictions of information – heavy investment in multimedia depictions – exposure to outside the norm modalities of expression **21st century learning** – critical thinking – gleaning information from narratives – graphical depictions of information – heavy investment in multimedia depictions – exposure to outside the norm modalities of expression – new literacies – differentiation – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms – understanding that students are mosaics of intelligences

	– collaborative work exposes students to other intelligences

Concepts Covered	**Relates to:**	**In survey section(s)**	**Interview Question(s)**
Setting a Positive Classroom Atmosphere	Metacognition Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 4, 5, 6, 7, 8, 9
Student Engagement	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 5, 7, 8, 9, 10, 12
Differentiated Instruction (DI)	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 8, 9, 11, 12, 13, 14, 15
DI Techniques for Classroom Management	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 5, 7, 8, 9, 10, 11
Classroom Questioning	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 5, 7, 8, 9, 10, 12
Co-Operative Learning	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	2, 3, 5, 6, 7, 9, 11, 12
Sparking Curiosity and Creativity	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Multiple Literacies	21st century learning	Differentiation	6, 7, 9
Environmental Literacy	21st century learning	Differentiation	6, 7, 9
Financial Literacy	21st century learning	Differentiation	6, 7, 9

Unit Plan Activities	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
New Technologies in Secondary Education	Design Thinking Multimodality 21st century learning	Differentiation Design Thinking	1, 4, 5, 6, 7, 11, 12
Transitional Self-Identity	21st century learning	Differentiation	6, 7, 8, 9, 11
Inclusion /Exclusion Issues in Schools	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15

Experience and Reflexivity

This course is part of the central pillar of the teacher education year. As such it is co-requisite with the teaching practicums. This course is the corollary theory to the experience of practicum such that it tempers and synergizes with the experience to provide opportunities for teacher candidate growth and reflexive practice. This course is a source of ideas to be used as a foundation for the rigours of practicum.

It was clear that this course pulled themes from other courses with a more practical purpose. It offered fresh, innovative, most importantly relevant ideas that could be utilized at the candidates' discretion. These ideas can be found among the inclusive pedagogies featured such as studies in metacognition, the Taxonomy of Learning Objectives, design thinking, multimodality, and 21st century learning.

The course is one sentence could be explained as "teachers teach students; not subjects."

Assignment Reflexivity

Instructional Strategies Seminar

This assignment is an opportunity for knowledge mobilization as well as exposure to contemporary topics with profound implications for professional practice. Students are tasked in working with a group of their peers to present an engaging lesson on their chosen topic, provide an interactive activity and field questions on their topic. The mirroring of engaging, inclusive and otherwise successful instruction is the major criterion of assessment. Students will wrestle with concepts related to metacognition, Bloom's Taxonomy, and 21st century learning.

Take-Home Exam

This assignment is an opportunity for students to apply all the learning in the course to a set of questions that are open-ended questions of teaching philosophy. The sort of questions that may be asked in an interview. Students are invited to contemplate the questions and provide detailed answers that express their opinions, experiences and their learning. This task relates to Bloom's Taxonomy, design thinking and metacognition.

Unit Plan

This assignment is a collaborative effort for teacher candidates of the same first teachable to work together and build from the ground up an instructional unit for any subject in their teachable field. The expectations are for as many "best practices" as possible to be included in the plan as well as the creation of Performance Assessment Task that brings the unit together. This provides an opportunity to apply the skills they learned combined with their experiences from practicum.

Classroom Dynamics Concurrent- EDUC 8P19 Consecutive- EDUC 8P06 Tech- EDUC 8P07	
Course Learning	**Connections to Inclusive Practice**
Know: Overall Expectations • Understand the dynamics of life in classrooms • Basic principles of teaching and learning for effective classroom management • Basic principles of teaching and learning for assessment designed for student learning • Relevant educational and	These course expectations relate to building skills in: **Metacognition** – strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction – applying expectations to student learning – lessons should appeal to all learning domains **21st century learning** – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms – understanding that students are mosaics of intelligences – collaborative work exposes students to other intelligences

<table>
<tr><td>psychological theories</td><td></td></tr>
<tr><td>Do:
Interweave assessment seamlessly into your curriculum planning
Learn about assessment OF, FOR, and As learning
Align your assessment practices, expectations, curriculum and instructional activities utilizing a backwards design process
Create assessment tools that connect expectations, and instructional strategies designed for student learning</td><td>These course expectations relate to building skills in:
Metacognition
– strategic thinking
– planning ahead
– backwards design
– decision-making and executive function
Bloom’s Taxonomy
– balanced instruction
– applying expectations to student learning
– lessons should appeal to all learning domains
Design Thinking
– shaping your practice to fit the class in front of you
– adapting assessment to be educative for students
– providing opportunities for expression
– challenge driven by choice
– flexibility within frameworks of curricula and instruction
– conducive to engagement and personal investment
– Higher-order cognition
– Experiencing the process of meaning-making
21st century learning
– flexibility to appeal to multiple intelligences
– adaptive instruction to cater to a variety of learners
– access to information in a variety of forms
– understanding that students are mosaics of intelligences
– collaborative work exposes students to other intelligences</td></tr>
<tr><td colspan="2">Assessment of Learning
Case Study Debriefing
You will work in a core group of 2-5 students with an assigned case study. Together you will use your collective experiences to deconstruct and identify the components of the case using a “story grammar” approach.
Groups will submit a report to include:
1. Completed Story Grammar Organizer
2. Summary of group discussions and responses to 3 selected questions
3. Case study reflection
• a discussion of relevant points made in your group</td></tr>
</table>

- a discussion of the case context and how this impacted your interpretation of the case
- connections to your personal experience/beliefs
- connections to class and/or outside readings

Field Assignment

The field assignment involves a field observation of two classrooms. This assignment provides an opportunity to relate theory to practice and clarify your understanding of classroom management techniques.

You will use the following questions:

1. How did the teacher ensure that students were engaged in the lessons?
2. What "transition times" occurred and what routines and procedures did you observe?
3. What authoritative strategies did you observe for creating a positive classroom environment, holding students accountable and ensuring they stayed on task?
4. Did you observe any ways that the teacher sought to build positive relationships with students?
5. How did the teacher demonstrate "with-it-ness" and what proactive intervention skills were used?
6. What "low-level" non-verbal limit setting did you observe?
7. What verbal teacher interventions did you observe?
8. Did you note any classroom rules (posted or referred to) and/or incentive systems?
9. Describe/sketch the physical arrangement of the classroom and reflect upon its effectiveness.

Following the visit(s), you will submit the observational organizers and a written discussion and reflection to include:

- Descriptions of relevant observations
- Descriptions of school(s) and class climate
- How your observations relate to the classroom climate/context and teacher effectiveness;
- Connections to the text/lecture material
- Management concerns that have been highlighted for you;
- Management "tips" you picked up from your observations;
- How your understanding of these issues will impact your future teaching practice.

Performance Assessment Measure

This assignment will provide you with the opportunity to become familiar with The Ontario Curriculum expectations and consider practical methods of

assessment and evaluation. With reference to one of the Ontario Curriculum documents (available at http://www.edu.gov.on.ca) choose a subject or strand within a particular grade level. ****lesson 6 will be the culminating activity**. Be sure to describe key teaching and learning activities and assessment opportunities/tools for each. Consider the expectations you are targeting and plan on how you will assess these expectations with a performance assessment measure.

Be:

- Capable of problem-solving for effective classroom management and student assessment
- Strategic in promoting social-emotional development and achievement, positive discipline and conflict resolution in school based relationships
- Be knowledgeable in assessment strategies based on current trends in teacher practice

These course expectations relate to building skills in:

Metacognition

– strategic thinking
– planning ahead
– backwards design
– decision-making and executive function

Bloom's Taxonomy

– balanced instruction
– applying expectations to student learning
– lessons should appeal to all learning domains

Design Thinking

– shaping your practice to fit the class in front of you
– adapting assessment to be educative for students
– providing opportunities for expression
– challenge driven by choice
– flexibility within frameworks of curricula and instruction
– conducive to engagement and personal investment
– Higher-order cognition
– Experiencing the process of meaning-making

21st century learning

– flexibility to appeal to multiple intelligences
– adaptive instruction to cater to a variety of learners
– access to information in a variety of forms
– understanding that students are mosaics of intelligences
– collaborative work exposes students to other intelligences

Concepts Covered	**Relates to:**	**In survey section(s)**	**Interview Question(s)**
Characteristics of effective teachers	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

Theories of class management	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	2, 3, 7, 8, 9, 11, 12, 13
Management strategies	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	2, 3, 7, 9, 11, 12, 13
Communication/ relationship building	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	1, 2, 3, 7, 8, 9, 10, 11, 12, 13, 14, 15
Structure, rules & routines	Metacognition 21st century learning	Learning Sciences Differentiation	1, 2, 7, 13
Cognitive, social, and moral perspectives	Bloom's Taxonomy Design Thinking 21st century learning	Learning Sciences Differentiation Design Thinking	1, 3, 4, 7
4 main goals of misbehaviour	Metacognition	Learning Sciences	1, 2, 13
Problem & minor misbehaviours	Metacognition	Learning Sciences	1, 2, 13
Proactive interventions skills	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Chronic behaviours	Metacognition Design Thinking 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 4, 7, 8, 9, 13
Teaching for understanding	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Authentic instruction	Metacognition Bloom's Taxonomy Design Thinking	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

	Multimodality 21st century learning		
Strategic instruction	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Motivation	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13
Character education	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	1, 2, 3, 6, 7, 8, 11
Culture and ethnicity	Metacognition Design Thinking 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 4, 6, 7
Socioeconomic status	Metacognition Design Thinking 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 4, 6, 7, 8, 9, 11
Gender	Metacognition 21st century learning	Learning Sciences Differentiation	1, 2, 6, 7, 8, 9, 11, 12
Reliability & validity in assessment	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 7, 10
Diagnostic and formative assessment	Metacognition Bloom's Taxonomy	Learning Sciences	1, 2, 3, 8, 10
Lesson Planning	Metacognition Bloom's Taxonomy Design Thinking Multimodality	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

	21st century learning		
Portfolios	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Authentic Assessments	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Peer and Self-Assessment	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Assessment tools	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Grading	Metacognition Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15

Experience and Reflexivity

This course covers topics in both assessment tools and classroom management. It follows a case study perspective that facilitates discussions on situations that teacher candidates will encounter such as misbehaving students, confrontations with parents and other stakeholder as well as many other recurring and almost certain encounters that occur constantly in teaching practice. The idea is to provide insights about professional practice, prior to professional practice. This course aligns with ideas from studies in metacognition, Bloom's Taxonomy, design thinking and 21st century learning.

The course is one sentence could be summarized in the statement "Students that are engaged with the material is the difference between a stridently productive classroom and one that is just noisy.

Assignment Reflexivity

Case Study Debriefing

This assignment is an exercise in applying the theoretical learning of this course and others to real-world situations to discover how you and others will think and act. The reflective portion is meant to help students experience the sort of encounters they might have in their practice in a safe environment with the support of their peers. Students will answer questions and present their findings to the class. This results in exposure to alternative perspectives as well as an opportunity to receive the feedback of their peers. This task relates to concepts in metacognition, 21st century learning, and multimodality.

Field Assignment

This assignment is designed to help students get experience in classrooms as well as provide an outlet for the observations, learning, and strategies they have developed from their in-class experience and apply it to their teaching practice. Students are given a set of instructional behaviours to look for during their observations. Seeing how other teachers strategize and implement many of the tactics that teacher candidates have been exposed to over the course of their degree is a beneficial experience. Students can potentially see connections between their learning from this assignment and concepts relating to metacognition, design thinking, as well as the 21st century learning.

Performance Assessment Measure

This assignment provides teacher candidates with an opportunity to become more skilled in how to design assessment that aligns with the learning of their students. In this regard, this course covers analogous concepts to EDUC 4P06. Students are tasked with creating a Performance Assessment Task that could be used in their future practice. The task should be an opportunity to put the learning of the connected unit into action and develop a product of some kind. Students are also expected to develop the assessment tool to accompany their task. This activity has the dual-purpose of both being an assignment and an example of exactly this sort of activity as students are expected to create a product from their learning. This task relates to concepts in metacognition, 21st century learning, design thinking, and Bloom's Taxonomy.

Special Education Concurrent- EDUC 8Y06 Consecutive- EDUC 8Y06 Tech- EDUC 8Y08	
Course Learning	**Connections to Inclusive Practice**
Know: Overall Expectations • Regulations in special education • Implications for professional practice • Terminology, theory, and methodology relevant to special education • Successful approaches for special education practice	These course expectations relate to building skills in: **Metacognition** – strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction – applying expectations to student learning – lessons should appeal to all learning domains **Design Thinking** – shaping your practice to fit the class in front of you – providing opportunities for expression – flexibility within frameworks of curricula and instruction – conducive to engagement and personal investment **Multimodality** – authentic assessments – reduced limits on acceptable forms of expression – graphical depictions of information – heavy investment in multimedia depictions – exposure to outside the norm modalities of expression **21st century learning** – affinity for technology – differentiation – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms
Do: • Apply special education learning to professional practice • Apply IEPs to the design of instructional practice	These course expectations relate to building skills in: **Metacognition** – strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction

• Recognize the physical, socio/emotional, behavioural, and cognitive needs of students. • Describe how successful special educators facilitate and coordinate instruction to the needs of students	– applying expectations to student learning – lessons should appeal to all learning domains **Design Thinking** – shaping your practice to fit the class in front of you – providing opportunities for expression – flexibility within frameworks of curricula and instruction – conducive to engagement and personal investment **21st century learning** – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms – understanding that students are mosaics of intelligences – collaborative work exposes students to other intelligences

Assessment of Learning

Quizzes

You will complete two short quizzes in class.

School Visit Report

All students must submit a report based on a school visit to an inclusive classroom, a resource withdrawal setting, a special education setting, or a special school setting.

Focusing on what you saw, heard, and experienced, provide a detailed description of the role of the teacher, focusing on their role in supporting students with special needs. This should encompass:

- The instructional methodologies observed.
- The resources materials used.

Focusing on what you saw, heard, and experienced, provide a detailed description of how the teacher moderates learning by interacting with students across the four above domains (see diagram). This should encompass a focus on students with exceptionalities, and explain:

- How the central role of the teacher as facilitator and coordinator of methodologies and materials meets the physical, social/emotional, behavioral, and cognitive needs of students.
- Answers the questions “What did I learn?” and “What would I do differently?”

Be	These course expectations relate to building skills in: **Metacognition**

• Well versed in the specific needs of students with exceptionalities and learning types • Flexible and inclusive in practice • Knowledgeable in special education techniques	– strategic thinking – planning ahead – backwards design – decision-making and executive function **Bloom's Taxonomy** – balanced instruction – applying expectations to student learning – lessons should appeal to all learning domains **Design Thinking** – shaping your practice to fit the class in front of you – providing opportunities for expression – flexibility within frameworks of curricula and instruction – conducive to engagement and personal investment **Multimodality** – authentic assessments – reduced limits on acceptable forms of expression – graphical depictions of information – heavy investment in multimedia depictions – exposure to outside the norm modalities of expression **21st century learning** – affinity for technology – differentiation – flexibility to appeal to multiple intelligences – adaptive instruction to cater to a variety of learners – access to information in a variety of forms – understanding that students are mosaics of intelligences

Concepts Covered	**Relates to:**	**In survey section(s)**	**Interview Question(s)**
Introduction to Special Education	Multimodality 21st century learning	Differentiation Design Thinking	1, 5, 7, 8, 9, 11
Assessment	Metacognition Bloom's Taxonomy Design Thinking	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 8, 9, 11
Education for All	Bloom's Taxonomy Multimodality	Learning Sciences Differentiation Design Thinking	1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14 , 15

	21st century learning		
Learning for All	Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14 , 15
Differentiated Instruction	Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15
Universal Design for Learning	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15
Intellectual Exceptionality: MID and DD	Multimodality 21st century learning	Differentiation Design Thinking	1, 5, 7, 8, 11, 13
Communication Exceptionality: Autism Spectrum Disorders	Multimodality 21st century learning	Differentiation Design Thinking	1, 5, 7, 8, 11, 13
Intellectual Exceptionality: Gifted	Metacognition Design Thinking	Learning Sciences Design Thinking	1, 2, 4, 7, 8, 11, 13
Communication Exceptionality: Learning Disability	Metacognition Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 5, 7, 8, 11, 13
Behaviour Exceptionality	Metacognition Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	1, 2, 3, 7, 8, 11, 13
Physical Exceptionalities & Multiple Exceptionalities	Metacognition Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 4, 5, 7, 8, 11, 13

Perspectives in Special Education	Metacognition Bloom's Taxonomy Design Thinking Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 2, 3, 4, 5, 7, 8, 9, 11
Cognitive Domain	Metacognition Bloom's Taxonomy Multimodality	Learning Sciences Design Thinking	1, 2, 5, 8, 10, 11, 12, 13, 14, 15
Social / Emotional Domain	Bloom's Taxonomy	Learning Sciences	1, 3, 8, 10, 11, 12, 13, 14, 15
Physical Domain	Bloom's Taxonomy Multimodality 21st century learning	Learning Sciences Differentiation Design Thinking	1, 3, 5, 7, 8, 10, 11, 12, 13, 14, 15
Behavioural Domain	Bloom's Taxonomy 21st century learning	Learning Sciences Differentiation	1, 3, 7, 8, 10, 11, 12, 13, 14, 15

Experience and Reflexivity

This course is discusses the range of issues and inclusive practices that make learning accessible to all students. In particular, this course was the first to introduce me to the ideas of Universal Instructional Design and Universal Design for Learning. These ideas are frameworks for being inclusive in teaching practice, hence they can be the pillar of an inclusive classroom that provides opportunities for all types of learners. The accommodations that make learning accessible are often good ideas for the class as a whole. This course is all about how inclusion is for everyone's benefit and that understanding and cultivating a culture of inclusion in a teacher's classroom strengthens that class' ability to learn as well as produce a harmonious balance between a safe space to take intelligent risks, and a stimulating environment where students are given expectations and the tools to meet and exceed them. This course relates to concepts in metacognition, Bloom's Taxonomy, design thinking, 21st century learning, and multimodality.

This course in one sentence can be described as what is necessary for some can be good for all.

Assignment Reflexivity

School Visit Report

Students will have the opportunity to complete a series of observations in a special education setting and report on their findings. The report is meant to consolidate the findings and experiences from their observations as well as facilitate critical thinking and reflection based on the learning in class, applied in tandem with the

experience of the observations. Students will have a list of behaviours and instructional strategies to look for. The findings of the report are meant to provide early experience in what sort of instructional behaviours will be successful. The findings are also an early chance to decide what kind of teacher you want to be. This course relates to concepts in metacognition, Bloom's Taxonomy, design thinking, 21st century learning, and multimodality.